

POPSF 11.3.234.1 v12
8/19/08

**CONOCOPHILLIPS COMPANY ("CONOCOPHILLIPS"),
ON BEHALF OF PHILLIPS PETROLEUM COMPANY,
TOSCO CORPORATION AND ASSETS OF 76 PRODUCTS COMPANY**

**RESPONSES TO JANUARY 18, 2008
EPA FIRST REQUEST FOR INFORMATION
PORTLAND HARBOR SUPERFUND SITE
PORTLAND, OREGON**

**DATA ON
SEWER OR STORM SEWER LINES**

RESPONSE TO QUESTION 18

USEPA SF



1363557

COPPOR00000473

January 25, 2008

Mr. Michael Romero
Oregon Department of Environmental Quality – NW Region
2020 SW Fourth Avenue, Suite 400
Portland, Oregon 97201

**RE: Upland Storm Water Source Control Status Report
ConocoPhillips Company – Portland Terminal
5528 NW Doane Avenue
Portland, Oregon**

Dear Mr. Romero:



Delta Consultants (Delta), on behalf of ConocoPhillips Company (ConocoPhillips), has prepared this letter to provide the status of ongoing work to evaluate the storm water source pathway for the ConocoPhillips Terminal located at 5528 NW Doane Avenue, Portland, OR (Site) (Figure 1). Work summarized in this letter was completed consistent with Delta's approved Storm Water Pathway Evaluation Work Plan (Work Plan), dated October 20, 2006. The work plan was modified to address concerns in approval letters from the Oregon Department of Environmental Quality (DEQ) dated July 31, 2007 and the City of Portland Bureau of Environmental Services dated November 9, 2006.

SCOPE OF WORK

The scope of work summarized in Delta's Work Plan is to assess the storm water pathway in accordance with the December 2005 Joint Source Control Strategy developed jointly by the DEQ and the USEPA. Specifically, the scope will assess if chemicals from the ConocoPhillips Portland terminal are migrating to the Willamette River at concentrations that potentially pose an unacceptable risk to human health or the environment.

The work focused on first sampling and analyzing the sites catch basin sediments to identify potential chemicals of interest (COI). Secondly, storm water discharge will be sampled and analyzed for the potential COIs. Delta proposed four storm water sampling events to further evaluate COIs. Catch basin sediment sampling and analysis was completed in September 2007. Storm water samples have not been collected in 2007 due to ongoing storm sewer repairs at the ConocoPhillips terminal. Storm water sampling will begin in early 2008 and is anticipated to be completed by November 2008.



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CATCH BASIN SEDIMENT SAMPLING & ANALYSIS

On September 24 through 26, 2007, Delta personnel collected sediment from twelve catch basins (CB-1, CB-10, CB-16, CB-17, CB-18, CB-23, CB-32, CB-35, CB-42, CB-48, CB-B, and CB-C). Methods used during sediment collection were consistent with methods and procedures described in the DEQs Standard Operating Procedures – Guidance for Sampling of Catch Basin Solids (JSCS 2005b). Five individual grab sediment samples were collected from each catch basin (one from each quadrant and one from the middle), thoroughly mixed, and sampled for one representative composite sample from each basin. Field notes that were recorded at the time of sampling included catch basin location and dimensions, any presence of water, grab sample locations, and the presence of any effluent/influent piping. Sediment that was collected ranged from silt to silty sand with gravel. The storm sewer system for the terminal is presented on Figure 2 and Figure 3. Catch basin sampling locations are described in the table below and presented on Figures 4 through Figure 7.

Catch Basin No.	Storm Water Drainage Basin	Figure Number
CB-1, CB-17	Truck Load Rack Area	Figure 4
CB-48	Warehouse Loading dock	Figure 4
CB-42	Near Boiler House	Figure 6
CB10, CB16	Tank Farm 1	Figure 4
CB18, CB23	Tank Farm 2	Figure 5
CB32, CB35	Tank Farm 3	Figure 6
CB-B, CB-C	River Dock Area	Figure 7

Laboratory Results

Twelve sediment samples (CB-1, CB-10, CB-16, CB-17, CB-18, CB-23, CB-32, CB-35, CB-42, CB-48, CB-B, and CB-C) and one duplicate sample (CB-10D) were submitted to Test America Laboratories of Beaverton, Oregon for quantitative chemical analysis. All samples were analyzed for the following COIs using the designated analytical methods and method reporting limits (MRLs).

Analysis	Method	MRL
GRO	EPA Method NWTPH-Gx	4.77 – 10.2 milligrams per kilogram (mg/kg)
DRO	EPA Method NWTPH-Dx	15.8 – 629 mg/kg
ORO	EPA Method NWTPH-Dx	31.6 – 1,260 mg/kg
Total Organic Carbon	EPA Method 9060M	1000 mg/kg
VOCs	EPA Method 8260	5.0 – 200 micrograms per kilogram (µg/kg)
PAHs	EPA Method 8270M SIM	85.6 – 4,310 µg/kg
PCBs	EPA Method 8082	8.37 – 55.8 µg/kg
Phthalates	EPA Method 8270-SIM	343 – 33,600 µg/kg
Total Metals	EPA Method 6000/7000	0.0700 – 7.36 µg/kg
Pesticides	EPA Method 8081A	3.37 – 1,190 µg/kg

Laboratory results were compared against specific stormwater Screening Level Values (SLVs) presented in Table 3-1 of the Joint Source Control Strategy (JSCS) and updated on July 16, 2007 (JSCS, 2005a). SLVs that were used for comparison include the "MacDonald Probable Effects Concentrations (PECs) and other Sediment Quality Values (SQVs)" and the "DEQ 2007 Bioaccumulative Sediment SLVs". Laboratory results and SLV comparisons for sediment data are presented in Table 1 through Table 5. Laboratory analytical reports and chain of custody documentation are presented in Attachment A.

Concentrations of gasoline-range hydrocarbons (GRO), diesel-range organics (DRO) and heavy oil-range organics (ORO) were detected in most catch basin samples; however, there are no established SLVs for these analytes. Concentrations of volatile organic compounds (VOCs) were detected in catch basin samples in the Truck Load Rack Area, Tank Farm 2, Boiler House Area, Tank Farm 3, Warehouse Loading Dock Area and river Dock Area however; there are no established SLVs for these analytes. Concentrations of polycyclic aromatic hydrocarbons (PAHs) were detected in excess of applicable SLVs in the Truck Load Rack Area, Tank Farm 2, Warehouse Loading Dock and River Dock Area. Due to matrix interference, the PAH analysis detection limit was raised above the SLVs for catch basin samples collected from the Tank Farm 1, Tank Farm 3 and the catch basin near the boiler house. No PAHs were detected in these areas. Metals and phthalates were detected above the SLVs in all areas sampled. Pesticides were detected in Tank Farm 2 and the River Dock Area. Due to matrix interference, the pesticides detection limit was raised above the SLVs for catch basin samples collected from the Truck Load Rack, Tank Farm 1, Tank Farm 3, Warehouse Loading Dock and the catch basin near the boiler house. Polychlorinated Biphenyls (PCBs) were not detected above the SLVs for any of the catch basin samples.

DISCUSSION AND CONCLUSIONS

Catch basin sediment sampling and analysis identified COIs that included PAHs, phthalates, pesticides and metals. Also analytical testing of several catch basin sediment samples had detection limits above the SLVs. Areas that have COI detections in sediments above the SLVs or detection limits above the SLVs will have storm water collected in accordance with the Work Plan. The storm water analytical program will be conducted as presented in the Work Plan. The COI to be sampled and sampling locations are presented below. The first sampling event is scheduled for February 2008. Please review the analytical program below and provide comments.

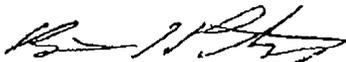
Drainage Area	Storm Water Sample Location	Laboratory analysis	Figure Number
Truck Load Rack	Manhole 12	PAHs, Metal, Phthalates, VOCs and Pesticides	Figure 4
Warehouse Loading Dock	Manhole X	PAHs, Metal, Phthalates, VOCs and Pesticides	Figure 4
Boiler House Area	Manhole 9	PAHs, Metal, Phthalates, VOCs and Pesticides	Figure 6
Tank Farm 1	Manhole 12	PAHs, Metal, Phthalates, VOCs and Pesticides	Figure 4
Tank Farm 2	Manhole 3	PAHs, Metal, Phthalates, VOCs and Pesticides	Figure 5
Tank Farm 3	Manhole 9	PAHs, Metal, Phthalates, VOCs and Pesticides	Figure 6
River Dock Area	WR-368, WR-370 and WR-012 (Metals only roof drain outfall)	PAHs, Metal, Phthalates and Pesticides	Figure 7

REMARKS

The recommendations contained in this report represent Delta's professional opinions based upon the currently available information and are arrived at in accordance with currently acceptable professional standards. This report is based upon a specific scope of work requested by the client. The contract between Delta and its client outlines the scope of work, and only those tasks specifically authorized by that contract or outlined in this report were performed. This report is intended only for the use of Delta's client and anyone else specifically listed on this report. Delta will not and cannot be liable for unauthorized reliance by any other third party. Other than as contained in this paragraph, Delta makes no express or implied warranty as to the contents of this report.

Sincerely,

DELTA CONSULTANTS



Brian J. Pletcher R.G.
Senior Project Geologist

cc: Mike Noll, ConocoPhillips Company
Jessica Eckert, SECOR International, Inc.

Attachments: Table 1 – Summary of Sediment Analytical Results TPH and VOCs
Table 2 – Summary of Sediment Analytical Results – PAHs
Table 3 – Summary of Sediment Analytical Results – Metals
Table 4 – Summary of Sediment Analytical Results – Phthalates and PCBs
Table 5 – Summary of Sediment Analytical Results – Pesticides

Figure 1 – Site Location Map
Figure 2 – Storm Water Separator Location Map
Figure 3 – Drainage Areas Site Plan
Figure 4 – Tank Farm 1 Drainage Plan
Figure 5 – Tank Farm 2 Drainage Plan
Figure 6 – Tank Farm 3 Drainage Plan
Figure 7 – Dock Facility Drainage Plan

Attachment A – Laboratory Analytical Reports and Chain-of-Custody Documentation

REFERENCE:

JSCS, 2005a (updated in 2007). Joint Source Control Strategy, Table 3-1, Department of Environmental Quality and U.S. Environmental Protection Agency. July, 2007.

JSCS, 2005b. Appendix D: Standard Operating Procedures – Guidance for Sampling of Catch Basin Solids, Department of Environmental Quality and U.S. Environmental Protection Agency. December 2005.

TABLES

TABLE 1
CATCH BASIN SEDIMENT SCREENING LEVEL COMPARISON - TPH, VOCs, AND PARAMETERS
ConocoPhillips Terminal
Portland, Oregon

Catch Basin Identification	Catch Basin Location	Date Sampled	TPH			VOCs											Parameters	
			GRO (mg/kg)	DRO (mg/kg)	ORO (mg/kg)	Benzene (µg/kg)	Toluene (µg/kg)	Ethylbenzene (µg/kg)	Xylenes (µg/kg)	MTBE (µg/kg)	Naphthalene (µg/kg)	EDB (µg/kg)	EDC (µg/kg)	Isopropylbenzene (µg/kg)	p-Propylbenzene (µg/kg)	1,3,5-Trimethylbenzene (µg/kg)	Percent Dry Weight (%)	TOC (mg/kg)
CB-1	Truck Load Rack	09/25/07	10.2	2,120	4,570	<5.0	130	32	180	<5.0	62	<5.0	<5.0	11	88	170	67.7	96,400
CB-10	Tank Farm 1	09/25/07	<5.48	726	4,590	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	67.9	10,900
CB-10D		09/25/07	<5.82	634	3,680	<5.0	<5.0	<5.0	<6.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	68.1	16,000
CB-16		09/25/07	<4.77	204	419	<5.0	<5.0	<5.0	<6.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	79.5	7,090
CB-17	Truck Load Rack	09/25/07	<5.60	424	2,700	<5.0	<5.0	<5.0	<6.0	<5.0	<200	<5.0	<5.0	60	64	<5.0	87.3	45,300
CB-18	Tank Farm 2	09/28/07	<4.98	92.9	281	<5.0	<5.0	6.6	30	<5.0	6.3	<5.0	<5.0	<5.0	<5.0	<5.0	73.9	10,800
CB-23		09/28/07	<4.83	80.8	280	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	77.9	6,280
CB-32	Tank Farm 3	09/24/07	8.21	1,140	5,310	<5.0	8.0	8.3	47	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	8.2	74.3	43,200
CB-35		09/24/07	<9.53	3,340	3,180	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	39.8	36,800
CB-42	Near Boiler House	09/25/07	<7.86	1,880	3,690	<10	470	<10	16	<10	<10	<10	<10	<10	<10	<10	48.0	67,000
CB-48	Warehouse Loading Dock	09/25/07	49.0	1,110	5,680	<25	16,000	<25	<25	<25	<100	<25	<25	<25	<25	<25	49.8	94,600
CB-B	River Dock Area	09/24/07	135	28,400	5,830	<5.0	<5.0	<5.0	9.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	38.8	33,000
CB-C (tab No. CB-X)		09/25/07	<5.83	57.1	480	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	69.6	10,400
Reference Point for Joint Source Control Screening Levels (SLVs)																		
Middleground Sediment SLVs																		
DEC 2007 Portland Harbor Sediment SLVs																		

NOTES:
mg/kg = milligrams per kilogram
µg/kg = micrograms per kilogram
<5.48 = Analyte not detected above the laboratory method reporting limit (MRL) of 5.48 mg/kg (or µg/kg).
SLVs from Table 3-1 of the Portland Harbor Joint Source Control Strategy (JSCS) guidance document, dated December 2005 (revised 7/16/07).
TPH = Total Petroleum Hydrocarbons
GRO = Gasoline Range Organics; analysis using Northwest method NWTPH-Gx.
DRO = Diesel Range Organics; analysis using NWTPH-Dx.
ORO = Heavy Oil Range Hydrocarbons; analysis using NWTPH-Hx.
VOCs = Volatile Organic Compounds; analysis using EPA Method 8260B.
TOC = Total Organic Carbon; analysis using EPA Method 8080M.

TABLE 2
CATCH BASIN SEDIMENT SCREENING LEVEL COMPARISON - PAHs
ConocoPhillips Terminal
Portland, Oregon

Catch Basin Identification	Catch Basin Location	Date Sampled	PAHs																	
			Acenaphthene	Acenaphthylene	Anthracene	Benzo (a) anthracene	Benzo (a) pyrene	Benzo (b) fluoranthene	Benzo (g,h,i) perylene	Benzo (k) fluoranthene	Chrysene	Dibenzo (a,h) anthracene	Fluoranthene	Fluorene	Indeno (1,2,3-cd) pyrene	Naphthalene	Phenanthrene	Pyrene	2-Methylnaphthalene	
CB-1	Truck Load Rack	09/25/07	<988	<988	<988	1,230	1,480	1,920	3,120	1,500	2,820	<988	3,030	<988	2,280	<988	1,780	3,060	<988	
CB-10	Tank Farm 1	09/25/07	<988	<988	<988	<988	<988	<988	<988	<988	<988	<988	<988	<988	<988	<988	<988	<988	<988	
CB-10D		09/25/07	<1,010	<1,010	<1,010	<1,010	<1,010	<1,010	<1,010	<1,010	<1,010	<1,010	<1,010	<1,010	<1,010	<1,010	<1,010	<1,010	<1,010	<1,010
CB-16		09/25/07	<839	<839	<839	<839	<839	<839	<839	<839	<839	<839	<839	<839	<839	<839	<839	<839	<839	<839
CB-17	Truck Load Rack	09/25/07	<496	<496	<496	<2,480	<496	<496	824	<496	<2,480	<496	<496	<496	<496	<496	<496	<2,480	<496	
CB-18	Tank Farm 2	09/26/07	<181	<181	<181	<181	205	215	388	<181	273	<181	205	<181	249	<181	<181	248	<181	
CB-23		09/26/07	<85.8	<85.8	<85.8	<685 ¹	<85.8	<85.8	<85.8	<85.8	<685	<85.8	<85.8	<85.8	<85.8	<85.8	<85.8	<685	<85.8	
CB-32	Tank Farm 3	09/24/07	<1,130	<1,130	<1,130	<1,130	<1,130	<1,130	<1,130	<1,130	<1,130	<1,130	<1,130	<1,130	<1,130	<1,130	<1,130	<1,130	<1,130	
CB-35		09/24/07	<840	<840	<840	<840	<840	<840	<840	<840	<840	<840	<840	<840	<840	<840	<840	<840	<840	
CB-42	Near Boiler House	09/25/07	<1,390	<1,390	<1,390	<1,390	<1,390	<1,390	<1,390	<1,390	<1,390	<1,390	<1,390	<1,390	<1,390	<1,390	<1,390	<1,390	<1,390	
CB-48	Warehouse Loading Deck	09/25/07	<1,340	<1,340	<1,340	1,840	1,930	2,080	3,950	1,880	3,150	<1,340	3,400	<1,340	3,040	<1,340	1,810	3,140	<1,340	
CB-B	River Dock Area	09/24/07	2,590	<1,720	<1,720	<1,720	<1,720	<1,720	<1,720	<1,720	<1,720	<1,720	6,170	<1,720	<4,310	12,400	3,680	13,500		
CB-C (lab No. CB-X)		09/25/07	<982	<982	<982	<982	<982	<982	<982	<982	<982	<982	<982	<982	<982	<982	<982	<982		
Portland Harbor Joint Source Control Screening Level Values (SLVs)			100	100	840	1,050	1,490	N/A	300	1,000	1,980	1,330	2,350	2,000	1,170	1,620				
Mackay River and other SLVs																				
Oregon Department of Environmental Quality SLVs			N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		

NOTES:
 µg/kg = micrograms per kilogram
 <988 = Analyte not detected above the laboratory method reporting limit (MRL) of 988 µg/kg.
 Bold face font indicates analyte was detected above the applicable screening level values (SLVs) presented in Table 3-1 of the Portland Harbor JSCS guidance document, dated December 2005 (revised 07/16/07).
 Yellow highlight indicates the laboratory MRL or analytical results exceeds one or both SLVs.
 SLVs from Table 3-1 of the Portland Harbor Joint Source Control Strategy (JSCS) guidance document, dated December 2005 (revised 7/16/07).
 PAHs = Polynuclear Aromatic Compounds; analysis using EPA Method 8270M-SIM

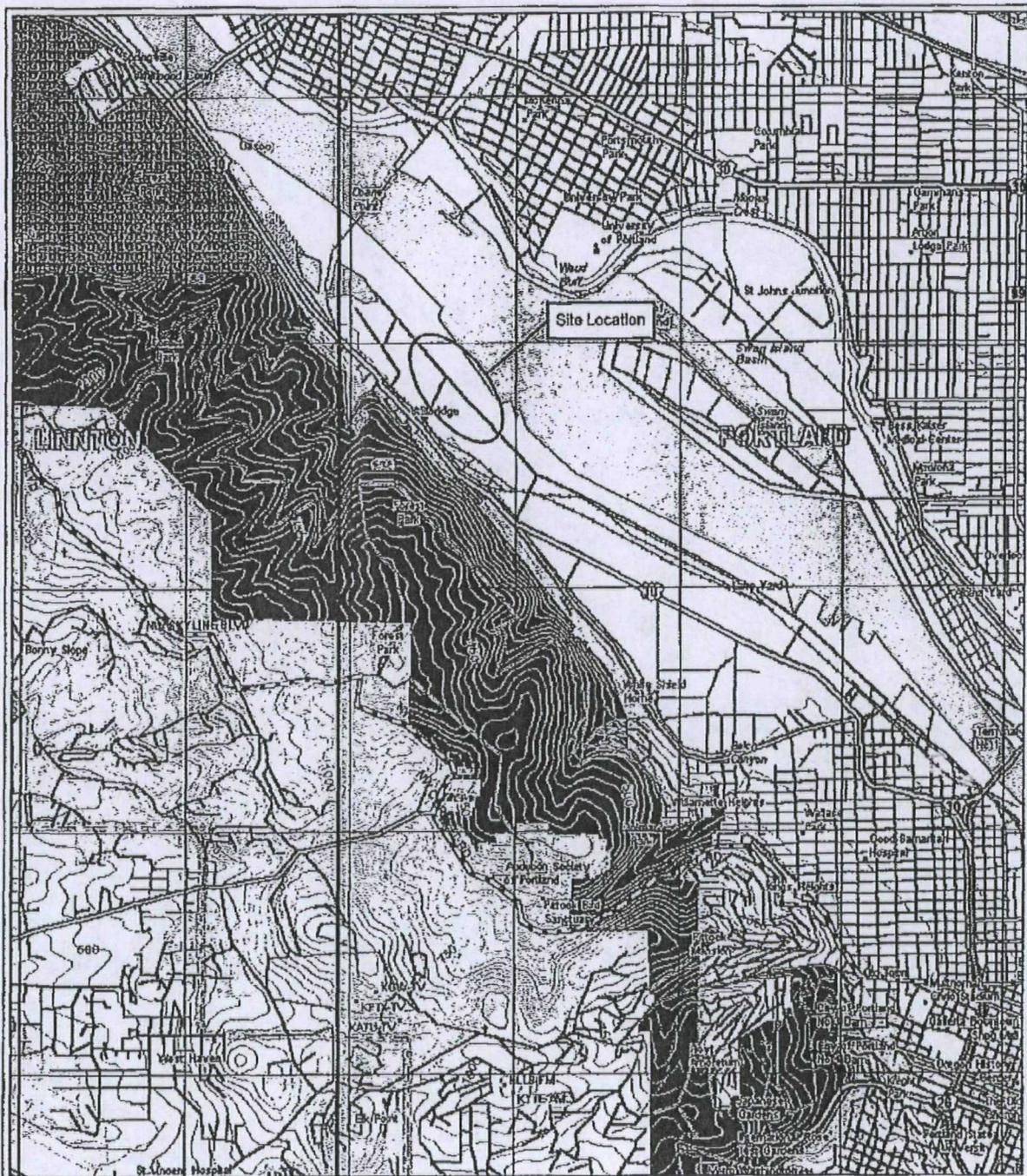
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**TABLE 3
CATCH BASIN SEDIMENT SCREENING LEVEL COMPARISON - METALS**
ConocoPhillips Terminal
Portland, Oregon

Catch Basin Identification	Catch Basin Location	Date Sampled	Metals													
			Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Copper	Lead	Mercury	Manganese	Nickel	Thallium	Zinc
CB-1	Truck Load Rack	09/25/07	9,160	<0.754	2.48	249	<0.754	0.781	36.8	88.1	72.4	0.147	248	21.9	<0.754	503
CB-10	Tank Farm 1	09/25/07	8,080	5.31	47.9	356	<0.736	<0.736	131	179	119	<0.0036	385	50.4	<0.736	1,220
CB-10D		09/26/07	11,500	1.94	21.2	212	<0.727	<0.727	42.7	58.9	62.9	<0.0810	348	23.8	<0.727	601
CB-16		09/25/07	9,130	0.681	6.77	91.7	<0.635	<0.635	144	87.2	108	<0.0700	326	55.1	<0.635	136
CB-17	Truck Load Rack	09/26/07	8,890	<0.736	2.91	86.3	<7.36	<0.736	21.9	41.6	54.5	<0.114	216	22.8	<0.736	878
CB-18	Tank Farm 2	09/26/07	10,100	7.46	4.73	95.7	<6.51	<0.651	277	61.4	280	0.238	424	172	<0.651	342
CB-23		09/26/07	11,800	58.6	259	229	<0.662	2.27	343	497	973	<0.0794	799	87.0	<0.662	2,540
CB-32	Tank Farm 3	09/24/07	7,890	<0.694	0.13	114	<0.694	1.54	111	85.3	116	<0.111	399	23.5	<0.694	1,300
CB-35		09/24/07	14,700	<1.31	28.1	118	<1.31	<1.31	45.2	167	177	0.976	660	55.4	<1.31	1,000
CB-42	Near Boiler House	09/25/07	9,000	1.78	3.60	184	<1.05	2.58	42.1	93.9	77.8	<0.145	313	30.5	<1.05	455
CB-48	Warehouse Loading Dock	09/25/07	11,000	<0.969	4.18	210	<0.969	1.74	90.3	102	220	<0.181	488	36.8	<0.969	1,630
CB-B	River Dock Area	09/24/07	14,200	<1.33	36.8	140	<1.33	3.78	39.1	131	197	<0.199	577	24.9	<1.33	778
CB-C (lab No. CB-X)		09/25/07	9,770	<0.704	16.4	103	<0.704	1.93	24.6	105	87.8	<0.0853	321	19.4	<0.704	1,160
Portland Harbor Joint Source Control Strategy (JSCS) guidance document, dated December 2005 (revised 07/18/07)			N/A													
Mackay Island and other sources			N/A													
Dredged material from the river			N/A													

NOTES:
mg/kg = milligrams per kilogram
<0.754 = Analyte not detected above the laboratory method reporting limit (MRL) of 0.754 mg/kg.
Bold face font indicates analyte was detected above the applicable screening level values (SLVs) presented in Table 3-1 of the Portland Harbor JSCS guidance document, dated December 2005 (revised 07/18/07).
Yellow highlight indicates the laboratory MRL or analytical results exceeds one or both SLVs.
SLVs from Table 3-1 of the Portland Harbor Joint Source Control Strategy (JSCS) guidance document, dated December 2005 (revised 7/18/07).
Total Metals analysis using EPA 6000/7000 Series Methods.

FIGURES



REFERENCES

USGS 7.5 Minute Topographic Maps
 Portland, Oregon-Washington
 Linnton, Oregon
 DeLorme TopoQuads, 1999
 SCALE: 1 inch = 3750 feet

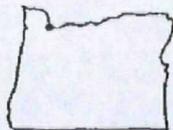
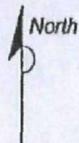
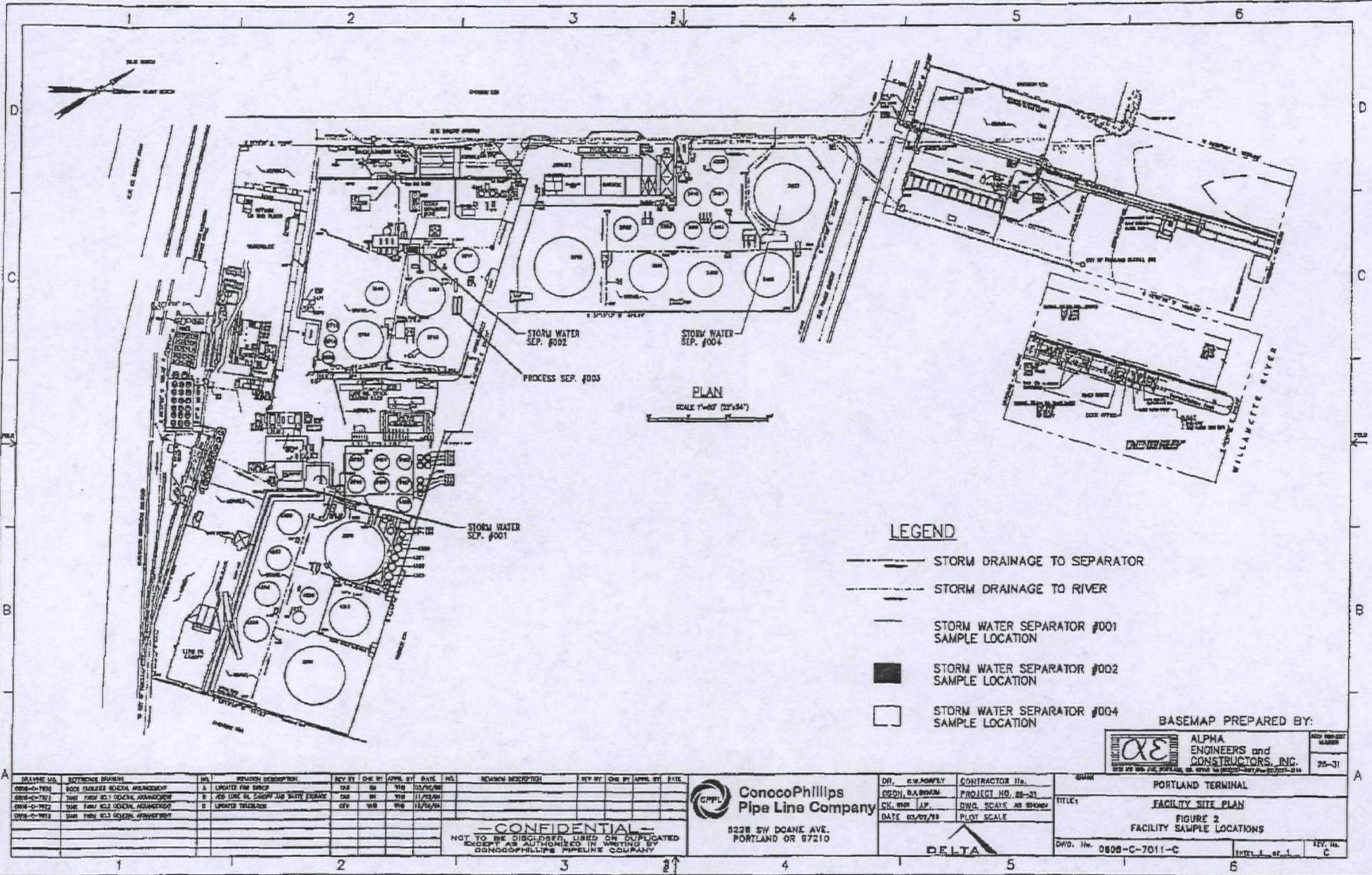


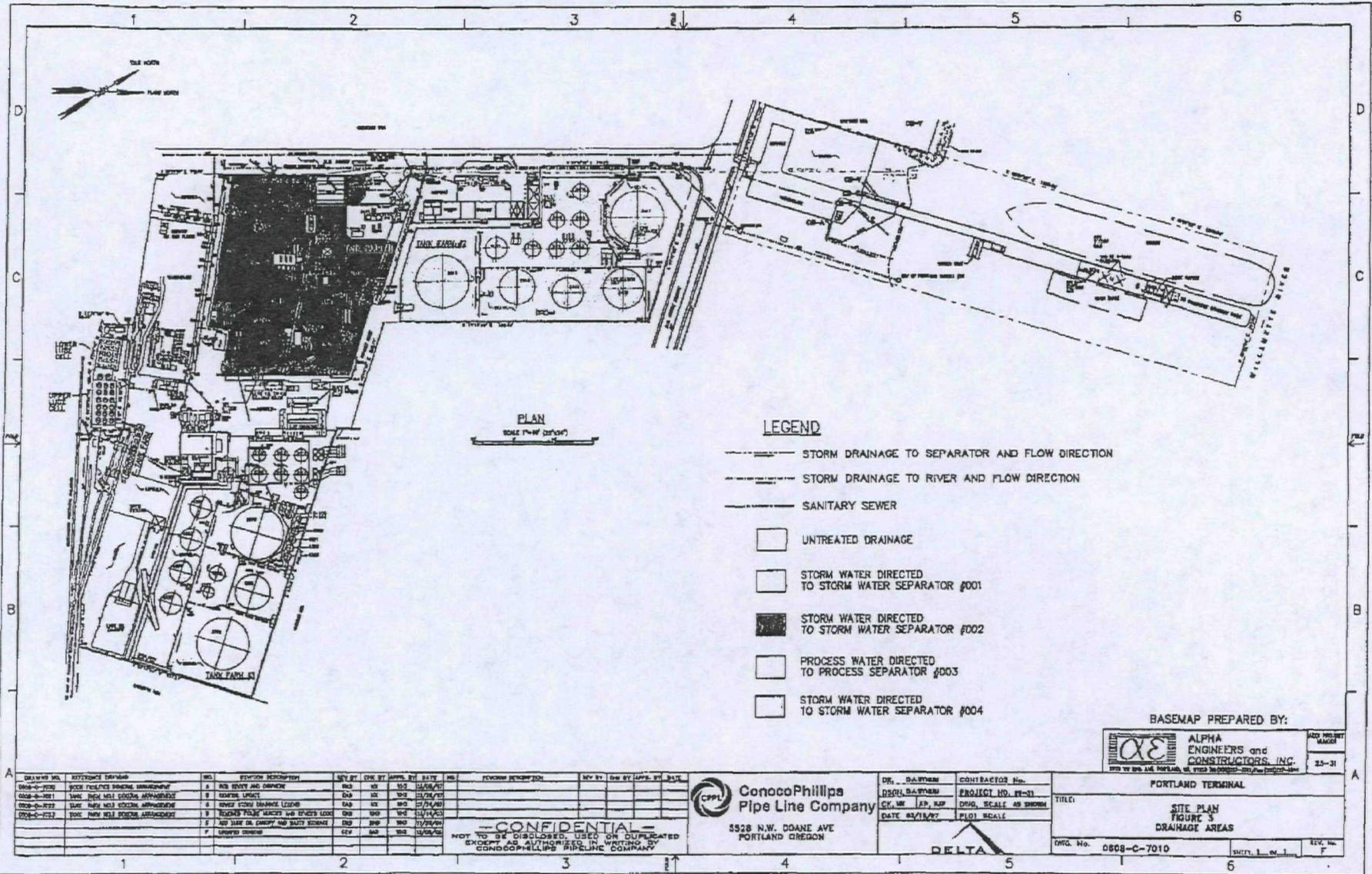
FIGURE 1
SITE LOCATION MAP
 Willbridge Petroleum Terminals
 Portland, Oregon

PROJECT NO. OR20922GW-6	DRAWN BY KNT 8-12-03
FILE NO.	PREPARED BY CRF 1/24/08
REVISION NO.	REVIEWED BY





COPPOR00000486



- LEGEND**
- STORM DRAINAGE TO SEPARATOR AND FLOW DIRECTION
 - STORM DRAINAGE TO RIVER AND FLOW DIRECTION
 - SANITARY SEWER
 - UNTREATED DRAINAGE
 - STORM WATER DIRECTED TO STORM WATER SEPARATOR #001
 - STORM WATER DIRECTED TO STORM WATER SEPARATOR #002
 - PROCESS WATER DIRECTED TO PROCESS SEPARATOR #003
 - STORM WATER DIRECTED TO STORM WATER SEPARATOR #004

BASEMAP PREPARED BY:
 ALPHA ENGINEERS and CONSTRUCTORS, INC.
 33-31

DRAWING NO.	REFERENCE DRAWING	NO.	REVISION DESCRIPTION	REV. BY	CHK. BY	APPV. BY	DATE	NO.	REVISION DESCRIPTION	REV. BY	CHK. BY	APPV. BY	DATE
0808-C-7010	SOIL PERMITS DRAINAGE ARRANGEMENT	1	REV. REVISION AND DRAWING	MS	MS	MS	12/28/97						
0808-C-7011	TANK FLOW WELL LOCATIONS APPROXIMATE	2	REVISION LOCATIONS	MS	MS	MS	12/28/97						
0808-C-7012	TANK FLOW WELL LOCATIONS APPROXIMATE	3	REVISION FLOW DRAINAGE LAYOUT	MS	MS	MS	12/28/97						
0808-C-7013	TANK FLOW WELL LOCATIONS APPROXIMATE	4	REVISION FLOW DRAINAGE LAYOUT	MS	MS	MS	12/28/97						
		5	ADD TANK DR. GROUPY AND SUFFY SCHEM	MS	MS	MS	12/28/97						
		6	UNREVISIONED	MS	MS	MS	12/28/97						

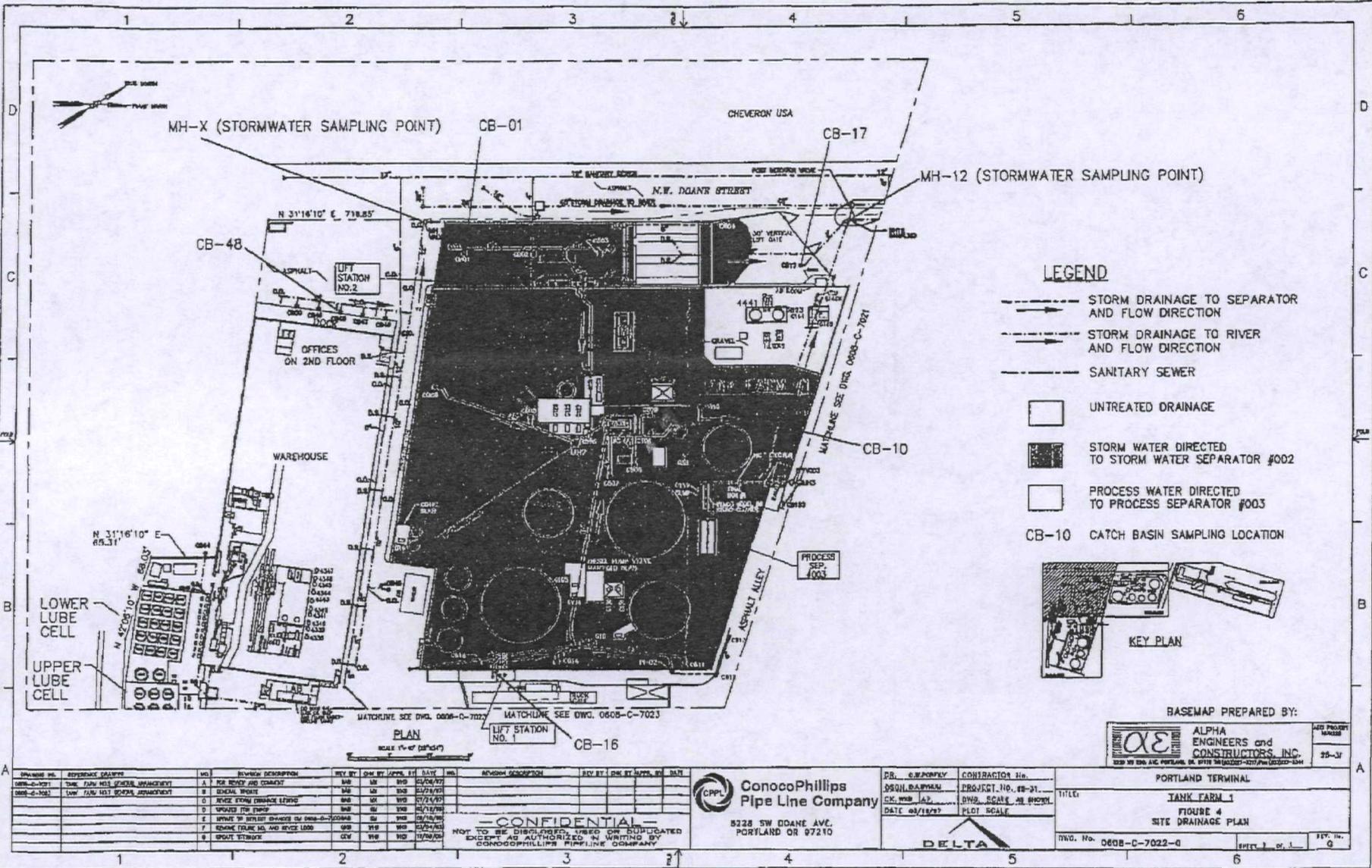
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 **ConocoPhillips Pipe Line Company**
 5528 N.W. DOANE AVE
 PORTLAND OREGON

DR. DRAWING CONTRACTOR No.
 DESIGN DRAWING PROJECT NO. 81-31
 C.V. ME. J.P. M.P. DMS. SCALE AS SHOWN
 DATE 8/21/97 PLOT SCALE

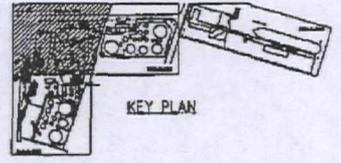
TITLE: **PORTLAND TERMINAL**
SITE PLAN
FIGURE 3
DRAINAGE AREAS
 DWG. No. 0808-C-7010 SHEET 1 OF 1 REV. No. F

COPP0R00000487



LEGEND

- STORM DRAINAGE TO SEPARATOR AND FLOW DIRECTION
- STORM DRAINAGE TO RIVER AND FLOW DIRECTION
- SANITARY SEWER
- UNTREATED DRAINAGE
- STORM WATER DIRECTED TO STORM WATER SEPARATOR #002
- PROCESS WATER DIRECTED TO PROCESS SEPARATOR #003
- CB-10 CATCH BASIN SAMPLING LOCATION



BASEMAP PREPARED BY:

AE ALPHA ENGINEERS and CONSTRUCTORS, INC.
2220 SW 20th Ave. Portland, OR 97205 (503) 237-7777

REVISION NO.	REVISION DATE	NO.	REVISION DESCRIPTION	REV BY	CHK BY	DATE	NO.	REVISION DESCRIPTION	REV BY	CHK BY	DATE
0008-C-7022-1	10/15/97	1	FOR REVIEW AND COMMENT	MB	MB	10/15/97					
0008-C-7022-2	10/15/97	2	REVISIONS TO BE MADE	MB	MB	10/15/97					
		3	REVISIONS TO BE MADE	MB	MB	10/15/97					
		4	REVISIONS TO BE MADE	MB	MB	10/15/97					
		5	REVISIONS TO BE MADE	MB	MB	10/15/97					
		6	REVISIONS TO BE MADE	MB	MB	10/15/97					
		7	REVISIONS TO BE MADE	MB	MB	10/15/97					
		8	REVISIONS TO BE MADE	MB	MB	10/15/97					

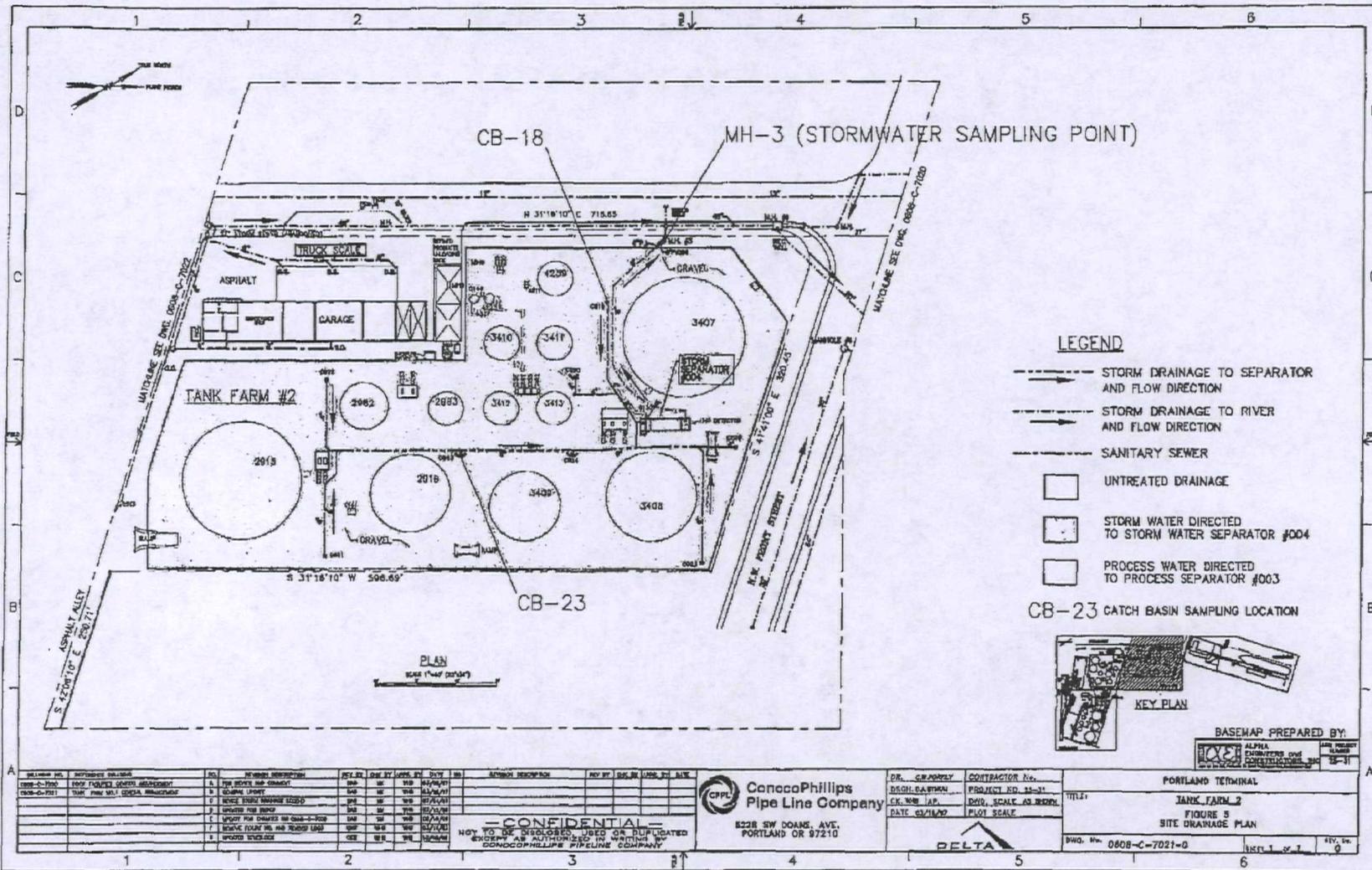
CPPL ConocoPhillips Pipe Line Company
 8228 SW ODANE AVE. PORTLAND OR 97210

DR. C.W. POPPLEY
 PROJECT NO. 00-31
 DATE 03/15/97

PORTLAND TERMINAL
 TANK FARM 1
 FIGURE 4
 SITE DRAINAGE PLAN
 DWD. No. 0008-C-7022-0
 SHEET 1 OF 1

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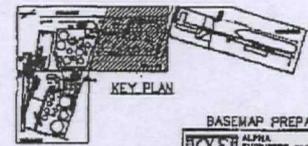
COPPOR00000488



LEGEND

- STORM DRAINAGE TO SEPARATOR AND FLOW DIRECTION
- STORM DRAINAGE TO RIVER AND FLOW DIRECTION
- SANITARY SEWER
- UNTREATED DRAINAGE
- STORM WATER DIRECTED TO STORM WATER SEPARATOR #004
- PROCESS WATER DIRECTED TO PROCESS SEPARATOR #003

CB-23 CATCH BASIN SAMPLING LOCATION



BASEMAP PREPARED BY:
 ALPHA ENGINEERS AND CONSULTANTS, INC.
 12-11

NO.	REVISION DESCRIPTION	DATE	BY	CHK'D BY	DATE	NO.	REVISION DESCRIPTION	DATE	BY	CHK'D BY	DATE
1	ISSUE FOR CONSTRUCTION	08/20/07	...	...	...	1	ISSUE FOR CONSTRUCTION	08/20/07	...	...	...
2	2	...	...	...	...	...
3	3	...	...	...	...	...
4	4	...	...	...	...	...
5	5	...	...	...	...	...
6	6	...	...	...	...	...

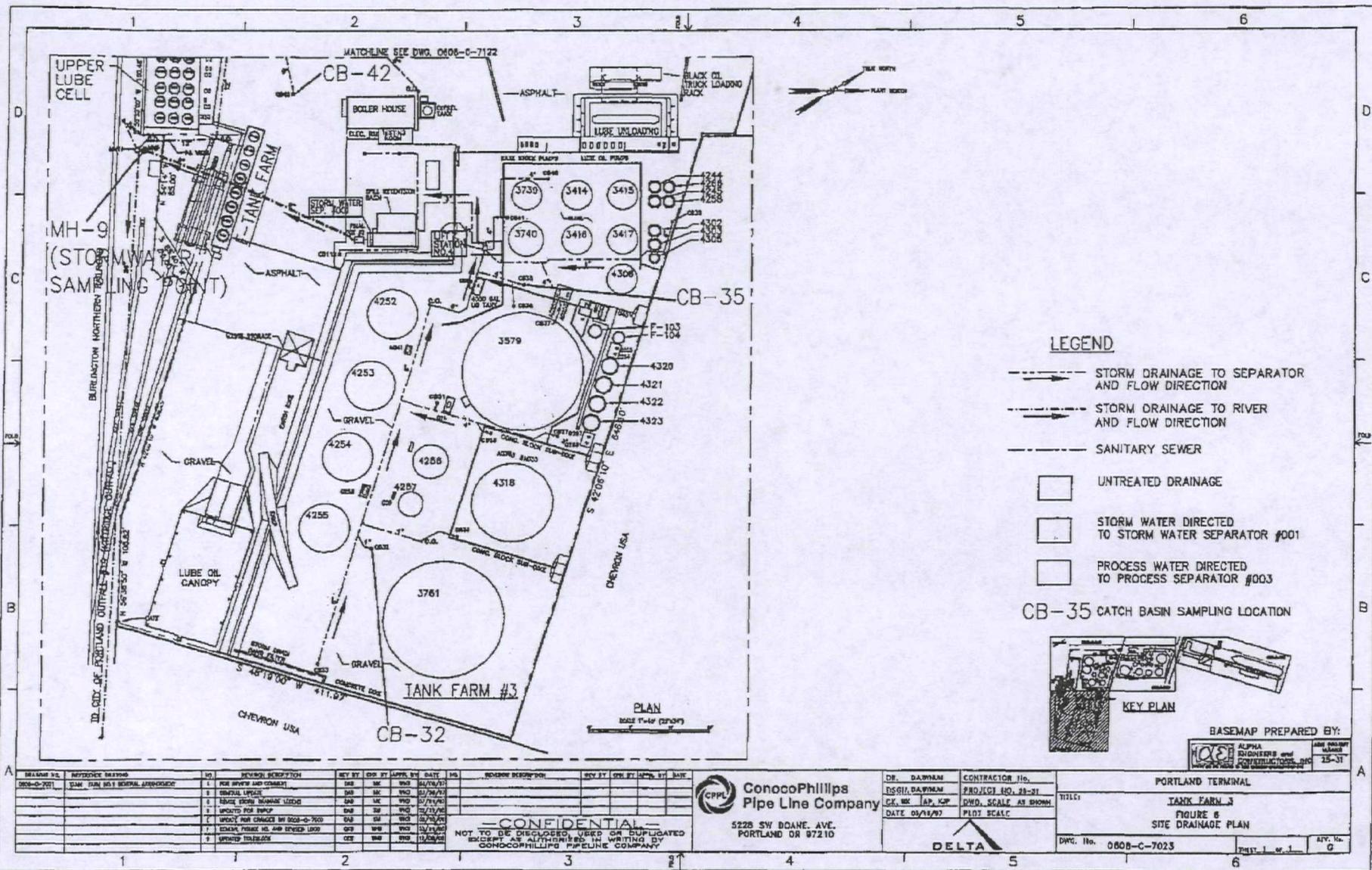
ConfocoPhillips
 Pipe Line Company
 8228 SW DOANS AVE.
 PORTLAND OR 97210

PR. GRANBY CONTRACTOR No.
 DESIG. GRANBY PROJECT NO. 08-01
 CK. N.W. JAC. REV. SCALE AS SHOWN
 DATE 03/11/07 PLOT SCALE

PORTLAND TERMINAL
 TANK FARM #2
 FIGURE 5
 SITE DRAINAGE PLAN
 SHEET 1 OF 1

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 EXCEPT AS AUTHORIZED IN WRITING BY
 CONFOCO/PHILLIPS PIPELINE COMPANY

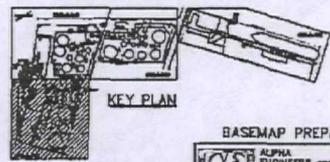
COPP0R00000489



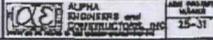
LEGEND

-  STORM DRAINAGE TO SEPARATOR AND FLOW DIRECTION
-  STORM DRAINAGE TO RIVER AND FLOW DIRECTION
-  SANITARY SEWER
-  UNTREATED DRAINAGE
-  STORM WATER DIRECTED TO STORM WATER SEPARATOR #001
-  PROCESS WATER DIRECTED TO PROCESS SEPARATOR #003

CB-35 CATCH BASIN SAMPLING LOCATION



BASEMAP PREPARED BY:



REVISION NO.	REFERENCE DRAWING	NO.	REVISION DESCRIPTION	REV BY	CHK BY	DATE	NO.	REVISION DESCRIPTION	REV BY	CHK BY	DATE
0000-0-001	TANK FARM #3 GENERAL ARRANGEMENT	1	FOR REVIEW AND COMMENT	MSB	MSB	04/26/97					
		1	GENERAL UPDATE	MSB	MSB	03/29/97					
		1	TANK FARM TANKING LEGEND	MSB	MSB	03/27/97					
		1	UPDATE FOR SWP	MSB	MSB	03/27/97					
		1	UPDATE FOR CHANGE BY 0000-0-002	MSB	MSB	03/27/97					
		1	REWORK PERMITS AND SPECIAL LUB	QST	MSB	03/27/97					
		1	UPDATE TANKING	QST	MSB	03/27/97					

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CONOCO-PHILLIPS PIPELINE COMPANY

CPPL ConocoPhillips
Pipe Line Company
5228 SW BOANE AVE.
PORTLAND OR 97210

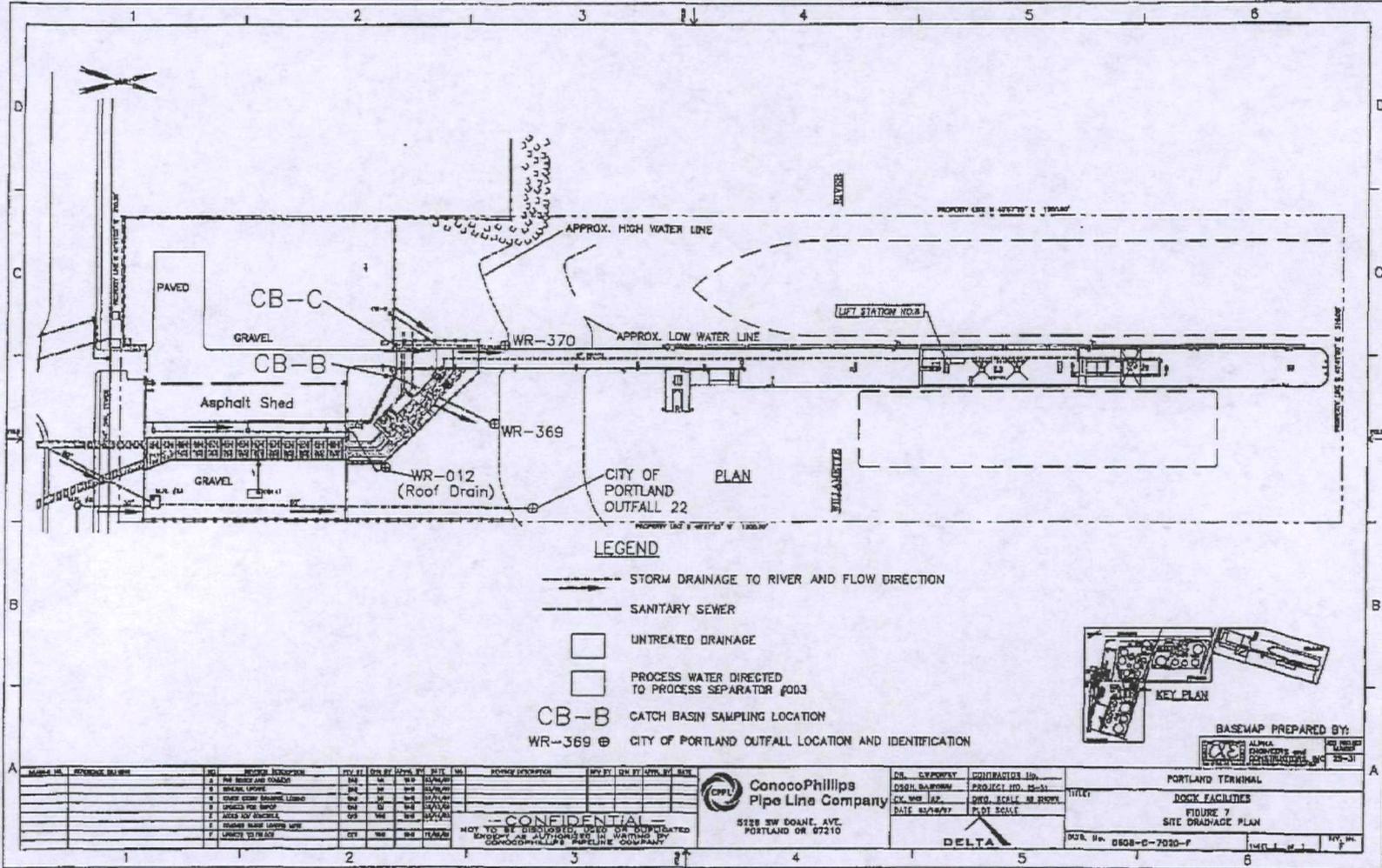
DR. DAPHAN
DSG/D. DAPHAN
SK. MS. JAP. KCP
DATE 03/26/97

CONTRACTOR NO.
PROJECT NO. 25-31
TANK FARM #3
FIGURE 6
SITE DRAINAGE PLAN
PILOT SCALE

PORTLAND TERMINAL
TANK FARM #3
FIGURE 6
SITE DRAINAGE PLAN

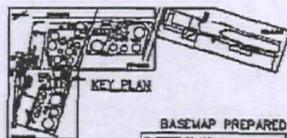
DRG. No. 080B-C-7023
SHEET 1 of 1
REV. No. G

COPPOR00000490



LEGEND

- STORM DRAINAGE TO RIVER AND FLOW DIRECTION
- SANITARY SEWER
- UNTREATED DRAINAGE
- PROCESS WATER DIRECTED TO PROCESS SEPARATOR #003
- CB-B CATCH BASIN SAMPLING LOCATION
- WR-369 ⊕ CITY OF PORTLAND OUTFALL LOCATION AND IDENTIFICATION



BASEMAP PREPARED BY:
 DELTA ENGINEERING AND CONSTRUCTION, INC.
 25-31

NO.	DESCRIPTION	REV.	DATE	BY	CHKD.	APP.	DATE
1	AS BUILT						
2	REVISION						
3	REVISION						
4	REVISION						
5	REVISION						
6	REVISION						
7	REVISION						
8	REVISION						
9	REVISION						
10	REVISION						

CONFIDENTIAL

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ConocoPhillips
 Pipe Line Company

5150 SW BOULE AV.
 PORTLAND OR 97210

DESIGNED BY: _____ CHECKED BY: _____ DATE: 02/28/97	CONTRACTOR NO.: _____ PROJECT NO.: 05-11 SHEET NO.: _____ SCALE: AS SHOWN	PORTLAND TERMINAL ROCK FACILITIES FIGURE 7 SITE DRAINAGE PLAN
DELTA ENGINEERING AND CONSTRUCTION, INC. 25-31		TITLE: _____ SCALE: _____ DATE: _____

March 15, 2007

Ms. Linda Scheffler
City of Portland Environmental Services
1120 SW 5th Avenue Room 1000
Portland, OR 97204

**RE: Doane Avenue Storm Sewer
Video Survey Summary
Willbridge Bulk Fuel Terminals
NW Doane Avenue
Portland, Oregon**



Dear Ms. Scheffler:

Delta Environmental Consultants, Inc. (Delta), on behalf of the ConocoPhillips Company (COP), has prepared this letter to present the results of a video survey on the 48-inch-diameter storm sewer located at NW Doane Avenue in Portland, Oregon (Figure 1). The 48-inch storm sewer receives storm water from both the COP and Chevron Terminals, along with run off and storm water from Doane Avenue and St. Helens Road. The 48-inch storm sewer connects to a 60-inch diameter storm sewer that discharges at Outfall 22 into the Willamette River. The location of the City of Portland's storm sewer and manhole locations are shown on Figure 2.

The numbers identifying the City's manholes were changed for better communication in the field for this project. The first three letters of the manhole identification were dropped and only the manhole numbers were used. For example; AAM076 will be discussed as MH-76. Manholes MH-3, MH-4 (decommissioned) and MH-12 are on COP property. All other manholes discussed in this report are in the City's right of way.

Background

On January 22, 2007, a Delta field technician reported petroleum product sheen at the City of Portland's Outfall 22. The sheen was contained within a previously boomed area around the outfall. Delta implemented a procedure to inspect the appropriate COP manholes and place sorbent pads in the COP manholes to detect the potential product.

On January 23, 2007, Delta met with the Department of Environmental Quality (DEQ) staff (Mr. Mike Romero and Mr. Henning Larson), and representatives from KinderMorgan and Chevron concerning the overall RI/FS project status for the Willbridge Terminal Group. As part of the meeting, the DEQ toured the beach and noticed the sheen from the outfall. Delta informed the DEQ that they were investigating if the sheen was from the COP site or others sites that are connected to the storm water system.



7150 SW HAMPTON SUITE 220 TIGARD, OREGON 97223 USA
PHONE 503.639.8098 / 800.477.7411 FAX 503.639.7619 WWW.DELTAENV.COM

January 24, 2007, Delta inspected the water in COP MH-12. There was a slight sheen on water flowing into MH-12 from a lateral pipe from Tank Farm #1 at the COP terminal. To determine the source of the sheen, Delta scheduled a camera to video the pipe from MH-12 to MH-4.

Video camera work was conducted on the COP pipe on January 26, 2007. The camera was lowered into MH-12 and inserted into the newly lined (October 2006) storm sewer pipe towards MH-4. Water with a slight sheen was observed flowing down the pipe. The camera was then moved to the cleanout at MH-4. The camera showed that water with a slight sheen was flowing from the 10-inch pipe that leads to COP oil/water separator #002. Since the oil/water separator valve was closed during the camera work and it had not rained for over a week, it was suspected that groundwater with sheen from historical terminal releases infiltrated the pipe joints and flowed through MH-12 and to Outfall 22.

Delta met with COP to discuss Portland Terminal Projects on January 30, 2007. Delta discussed the findings from the camera work with COP and the terminal manager. It was recommended that the MH-12 valve be closed so that water and with sheen could not be discharged to the river from the COP pipe. The valve was closed and remains closed.

After the meeting with the COP terminal manager the following agencies were notified about the river sheen on January 30, 2007.

- National Response Center
- Oregon Emergency Response
- U.S. Coast Guard
- DEQ
- City of Portland, Bureau of Environmental Services

The sheen noted in MH-12 did not account for all of the sheen observed at the out fall. To determine other potential sources of sheen, a video survey of the 48-inch storm sewer was recommended. On February 5, 2007, Delta obtained an access agreement to conduct the survey from the City of Portland Attorneys office. On February 6, 2007 the agreement was signed by COP and the video survey was conducted on February 7, 2007.

Video Survey Summary

Delta subcontracted Cowlitz Clean Sweep (CCS) to conduct the video tape survey of the 48-inch storm sewer under Doane Avenue on February 7, 2007. The descriptions below are the observations made during the survey and are also described on CCS field log included as Attachment A. A copy of the video tape is provided on the enclosed DVD. Leaky storm water pipe joint locations observed during the video survey are shown on Figure 2.

MH-12 Inspection

A robotic camera was lowered into MH-12 and moved up a 12 inch diameter pipe towards former MH-4. The MH-12 valve (closed) located at .1 foot appeared to be slightly leaking (estimated at less than a gallon per minute). No visible sheen was noted coming from the valve or lateral, however iron precipitate and dark oily staining was apparent. The camera was turned and entered the effluent 12 inch diameter lateral line from MH-12 that travels approximately 15 feet to the 48-inch storm sewer line. At 1.4 feet into the lateral, dark staining was noted after line sweeps to the left and the pipe joint appears to be offset. The camera was not capable of making it through the pipe sweep and was removed from MH-12.

MH-86 to MH-80

The camera was lowered into MH-86 and slowly moved down the 48-inch storm sewer down stream towards MH-80. At 1.3 feet from MH-86, a lateral line from the right (discharge from MH-12 lateral) entered the 48-inch storm sewer line. Most notable was a large mat of iron precipitation descending from the lateral and a few dark liquid droplets were noted along the edges of the iron precipitation mat. Due to the height of the lateral above the bottom of the storm sewer, viewing by the camera inside the lateral was not possible. The camera was moved down stream to 24 feet without any notable leaky joints. At 25.6 feet the camera went underneath MH-76. The bottom side of an intersecting process sanitary sewer line was viewed and appeared to be in good condition. Some dark staining was noted but no evidence of active leaking was apparent. The camera then moved past MH-76 towards MH-89. At 131.8 feet, 143.7 feet, and 167.6 feet; joints in the 48-inch storm sewer line were stained dark. Possible repairs areas (concrete patches) were noted at 274.5 feet and 394.4 feet but no leaking or staining was observed. At 431 feet, 443 feet, and 455 feet; pipe joints showed indications of leaking by the observed mats of iron precipitation and dark liquid droplets but no sheen was observed at these joints. Sheen was observed coming from the bottom of the pipe joint at 467.1 feet. At 472.1 feet the camera went beneath manhole MH-89. Iron precipitation was observed in and around the area beneath the ladder rungs. A lateral from MH-75 (camera right) entered the 48-inch storm sewer line at 475.2 feet. Dark staining was noted in and underneath the pipe lateral. The lateral intersected the 48-inch storm sewer line above camera level so viewing into the line was not possible. Very little iron precipitation was present at this lateral. Directly across the 48-inch storm sewer line (camera left), a lateral from the Chevron terminal was present and noted as having large amounts of iron precipitation. The Chevron lateral intersected the 48-inch storm sewer line above camera level so viewing into the line was not possible. At 583.9 feet the camera approached MH-80. A flow meter installed by the City of Portland was present at MH-80 and the 48-inch storm sewer pipe begins to sweep to the cameras right and travels beneath Front Avenue. No leaky joints were noted at MH-80 and the camera was pulled back to MH-86 and removed from the storm sewer.

MH-76 to MH-794

Visible sheen was noted looking down into the storm sewer from MH-76 prior to lowering the camera into the manhole. The camera was placed in MH-76 and directed upstream towards MH-794. No sheen was visible in the vicinity of MH-76 from the cameras view point. At 20.9ft the lateral from MH-12(camera left) is observed. Iron precipitate mat and some dark liquid droplets were visible. At 27 feet the camera passed manhole MH-86. At 192.7 feet a lateral (camera right) from the Chevron terminal enters the 48-inch storm sewer line. Iron precipitation and dark staining was observed coming from and beneath the lateral pipe. At 217.1 feet a former lateral (camera right) was observed. It appeared that the lateral line was plugged and/or decommissioned. Dark staining and orange tinge were noted to be present but not fresh or wet in appearance. At 259.4 feet a leaky joint was observed. No iron precipitation was observed but heavy, dark, wet staining was present. Large cobble were encountered around the leaky joint and at 286.7 feet. Beyond this joint more large cobbles prevented further camera travel toward MH-794. The camera was stopped approximately 50 feet down stream of MH-794.

Push Camera Inspection of COP Laterals

Attempts were made to photograph the lateral line between MH-12 and the 48-inch storm sewer line with a push camera. Depth of the water in the lateral and dirty, oily smudging on the camera lens prevented the recording of acceptable footage. Similar attempts were made to photograph the lateral between MH-75 and MH-89. This lateral was mostly dry and but dark staining and iron precipitation approximately 5 feet in from MH-75 toward MH-89 was observed.

MH-77 to MH-80

The robotic camera was deployed in MH-77 and directed upstream underneath Front Avenue toward MH-80. No leaky joints were observed between MH-77 and MH-80. Iron precipitate mats and dark liquid droplets were observed from the joint 5 feet down stream of MH-77 in the 60-inch storm sewer. A storm sewer line (from Front Ave.) that converges with the 60-inch storm sewer and is upstream of the leaky joint was also observed. The camera was unable to make the turn to go up the converging storm sewer line (from Front Ave.) and was then removed from MH-77.

Corrective Actions and Assessments

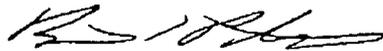
On February 8, 2007, Delta subcontracted CCS to plug the lateral at MH-75 that is connected to the 48-inch storm sewer near MH-85. The lateral was plugged at the 48-inch storm sewer and at MH-75. Prior to plugging the lateral the City's maintenance office was contacted and approval was granted to enter the storm sewer to plug the lateral. Storm water from the COP tank farm is presently being pumped into MH-85 from MH-3. This will continue until the lateral is lined to prevent infiltration of groundwater and sheen.

Presently the valve is closed at MH-12 and sorbent pads are in the manhole. Delta has contacted a subcontractor to line in place approximately 200 feet of 10-inch pipe from the oil/water separator 002 to the former manhole MH-4 at the COP terminal to prevent infiltration of groundwater. Storm water will not be discharged through MH-12 until the 10-inch pipe is lined. COP also has plans to seal MH-12 and line in place the lateral to the 48-inch storm sewer from MH-12. Lining of the pipes on COP property, sealing MH-12 and lining the laterals at MH-12 and MH-79 is tentatively scheduled for late March or early April 2007.

Delta is currently conducting a groundwater assessment near the 48-inch storm sewer in the vicinity of COP MH-12 and MH-3. Data from this assessment will be provided to the City in May 2007.

If you have any questions regarding the contents of this letter, please call me at (503) 639-8098.

Sincerely,
Delta Environmental Consultants, Inc.



Brian J. Pletcher, R.G.
Senior Project Geologist

Storm Sewer Survey
March 13, 2007
Page 5 of 5

Figures

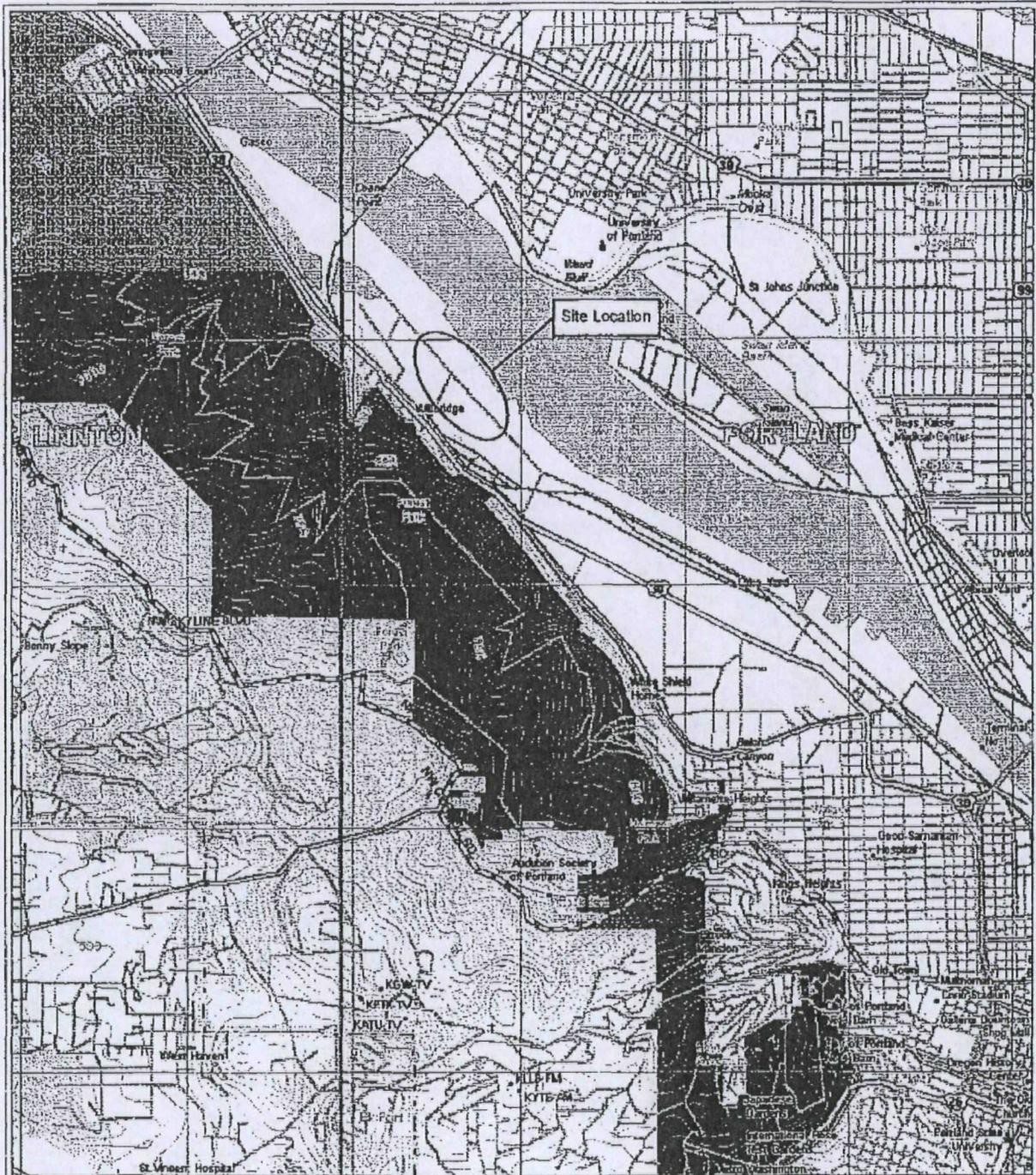
Figure 1 – Site Location Map
Figure 2 – Storm Sewer Video Survey Results

Attachment A – CCS Field Log

DVD – 48" Storm Sewer Survey 2007

cc: Mike Noll, ConocoPhillips
Darin Rouse, Chevron Environmental Management Company
Grant Sprick, ARCADAIS BBL
Michael Romano DEQ

FIGURES



REFERENCES

USGS 7.5 Minute Topographic Maps
 Portland, Oregon-Washington
 Linnton, Oregon
 DeLorme TopoQuads, 1999
 SCALE: 1 inch = 3750 feet

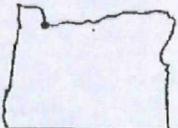


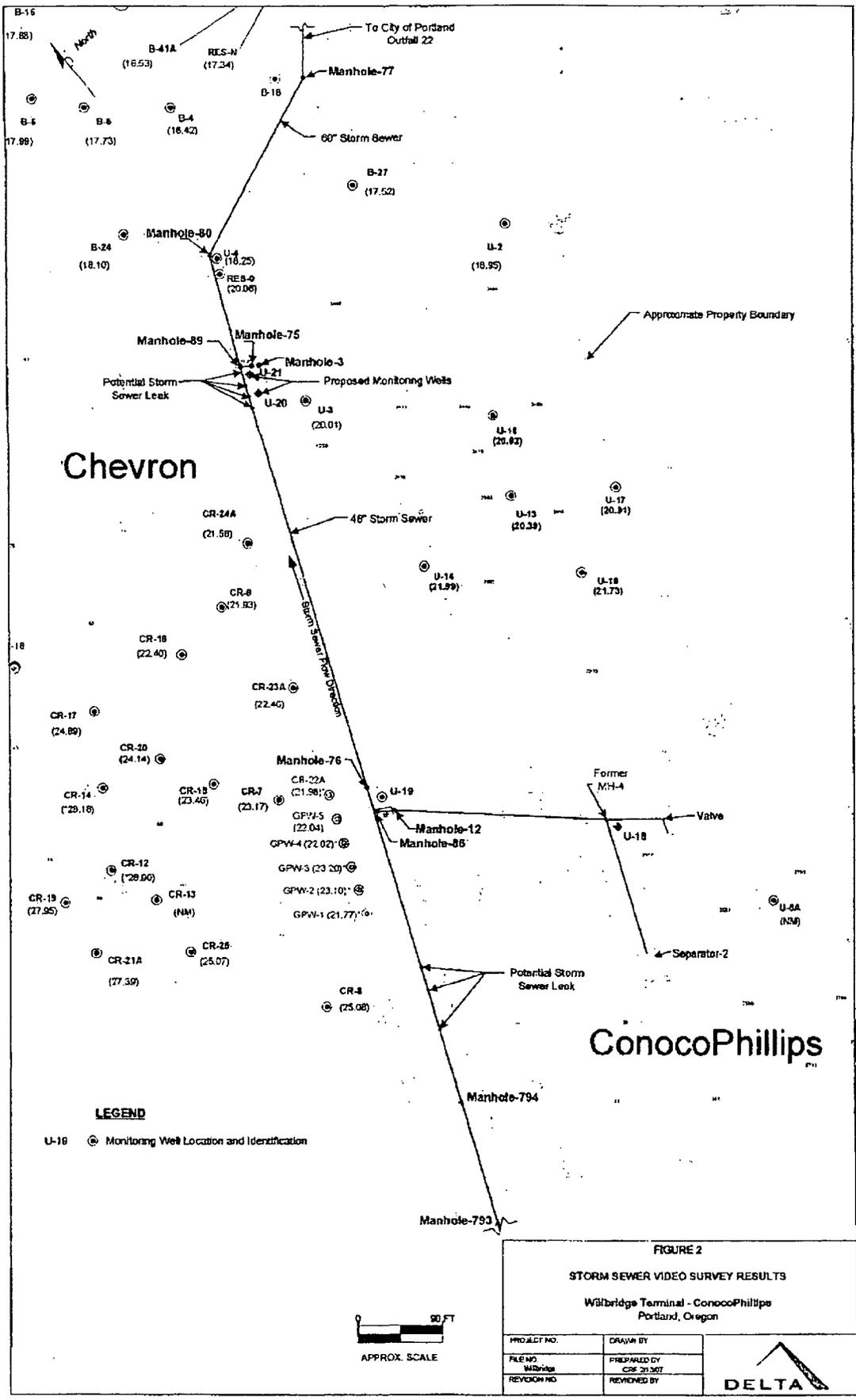
FIGURE 1

SITE LOCATION MAP

Willbridge Petroleum Terminals
 Portland, Oregon

PROJECT NO. ORZ0622GW-6	DRAWN BY KNT 6-12-03
FILE NO.	PREPARED BY CRF 3/15/07
REVISION NO.	REVIEWED BY





Chevron

ConocoPhillips

LEGEND

U-18 (U-18) Monitoring Well Location and Identification

FIGURE 2

STORM SEWER VIDEO SURVEY RESULTS

Willbridge Terminal - ConocoPhillips
Portland, Oregon

PROJECT NO.	DRAWN BY
FILE NO.	PREPARED BY
REVISION NO.	REVIEWED BY



ATTACHEMENT A

CCS FIELD LOG

Cowlitz Clean Sweep
55 International way
Longview Wa
Phone: 360-423-6316
Fax: 360-423-3409
E-Mail:
Web Site: www.pccorp.com

Graphical View Detailed Report

Aries VE-4000

2/7/2007 4:39:45 PM

Database Name: C:\Program Files\VC4000\Data\Delta environmental 2-7-07.mdb

Page Number 1

Downstream Structure
MH-12

City Name: PORTLAND,OR
Customer Name: DELTA ENVIROMENTAL
Project Number:
Project Name:

0 FEET START INSPECTION AT MH-12

0.1 FEET END OF RUN

0.1 FEET LEAKY VALVE

0 FEET

Upstream Structure
VALVE

Date: 2/7/2007	Pipe Size: 12	Street:	VCR Count: 0:00:00
Time: 9:55:56 AM	Pipe Type: RCP	Video Tape Number:	Total Distance: 0.1
Operator: SMART	Sewer Type: ST		

Cowlitz Clean Sweep
 55 International way
 Longview Wa
 Phone: 360-423-6316
 Fax: 360-423-3409
 E-Mail:
 Web Site: www.pccc.com

Graphical View Detailed Report

Aries VC-4000

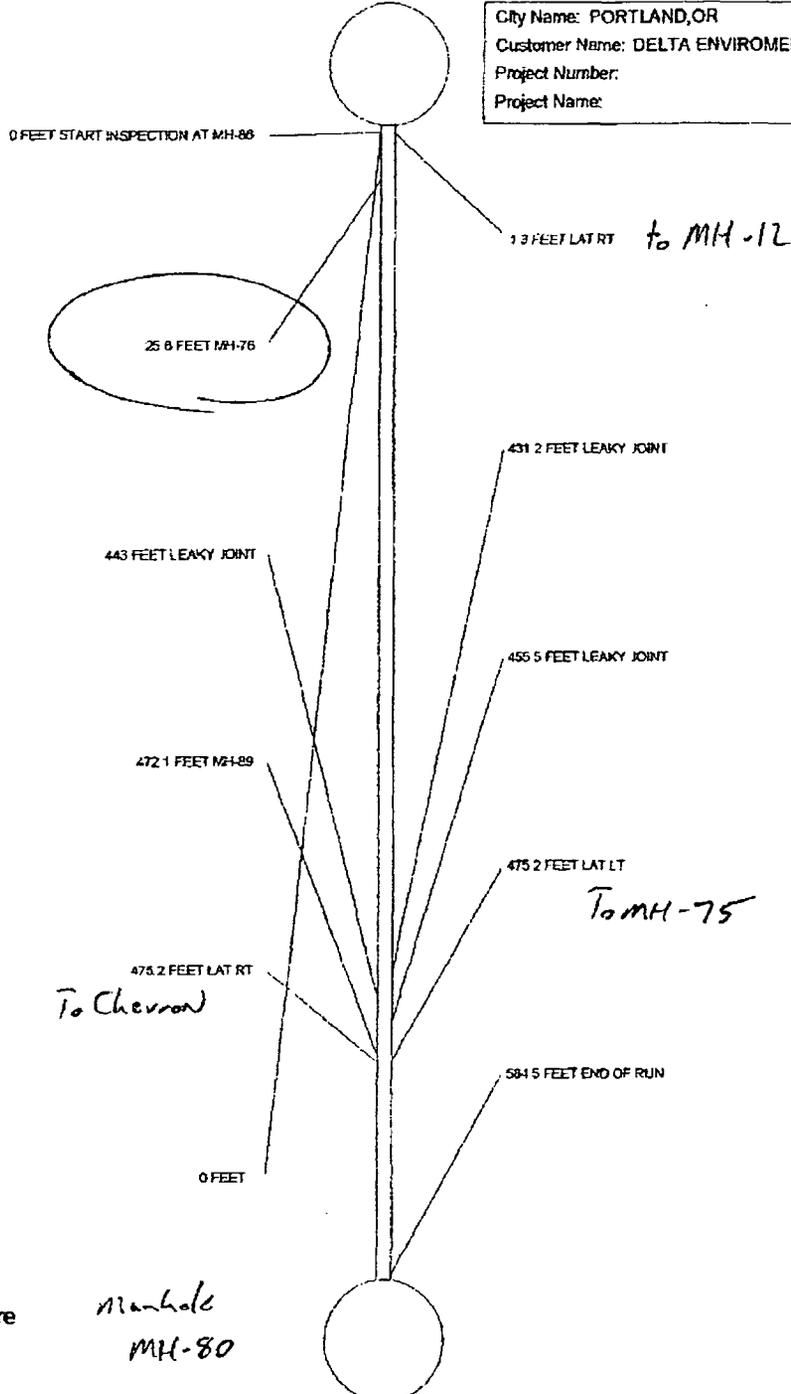
2/7/2007 4:39:45 PM

Database Name: C:\Program Files\VC4000\Data\Delta environmental 2-7-07.mdb

Page Number 1

Upstream Structure
 MH-86

City Name: PORTLAND,OR
 Customer Name: DELTA ENVIROMENTAL
 Project Number:
 Project Name:



Downstream Structure
 MH-76 ~~80~~ 80

Manhole
 MH-80

Date: 2/7/2007	Pipe Size: 48	Street:	VCR Count: 0:10:05
Time: 10:22:16 AM	Pipe Type: RCP	Video Tape Number: 1	Total Distance: 584.5
Operator: SMART	Sewer Type: ST		

Cowlitz Clean Sweep
55 International way
Longview Wa
Phone: 360-423-6316
Fax: 360-423-3409
E-Mail:
Web Site: www.paccorp.com

Graphical View Detailed Report

Aries VC-4000

2/7/2007 4:39:45 PM

Database Name: C:\Program Files\VC4000\Data\Delta environmental 2-7-07.mdb

Page Number 1

**Upstream Structure
MH-80**

City Name: PORTLAND,OR
Customer Name: DELTA ENVIROMENTAL
Project Number:
Project Name:

0 FEET START INSPECTION AT MH-80

0 FEET

185.7 FEET END OF RUN MH-80

**Downstream Structure
MH-77**

Date: 2/7/2007

Pipe Size: 48

Street:

Time: 1:49:50 PM

Pipe Type: RCP

Video Tape Number: 1

VCR Count: 1:49:35

Operator: SMART

Sewer Type: ST

Total Distance: 185.7

Cowlitz Clean Sweep
 55 International way
 Longview Wa
 Phone: 360-423-6316
 Fax: 360-423-3409
 E-Mail:
 Web Site: www.pccorp.com

Detailed Pipe Segment Report

Aries VC-4000

2/7/2007 4:39:34 PM

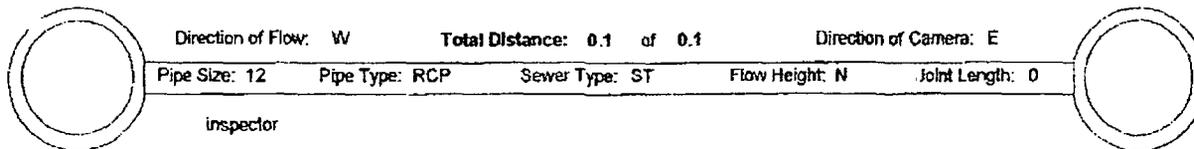
Database Name: C:\Program Files\VC4000\Data\Delta environmental 2-7-07.mdb

Page Number 1

Date: 2/7/2007	City Name: PORTLAND,OR	Tape Number: 1
Time: 9:55:56 AM	Customer Name: DELTA ENVIROMENTAL	VCR Count: 0:00:00
Record Number: 1	Project Number:	File Name:
Investigator: SMART	Project Name:	CD-ROM #:
Quarter Section:	Weather: CLOUDY	Street:
Sub-Basin ID:	Inspection Type: TV NEW LINE	Intersects:
Lot To Lot #:	Maintenace Prior: NONE	Location ID: Type:

Upstream Manhole
VALVE

Downstream Manhole
MH-12



Depth:

Depth:

GPS:

GPS:

Comments:

Distance	Code	Clock	Priority	Parameters	VCR Crd	Image	Comments
0	GO						START INSPECTION AT MH-12
0.1							LEAKY VALVE
0.1							END OF RUN

Cowlitz Clean Sweep
 55 International way
 Longview Wa
 Phone: 360-423-6316
 Fax: 360-423-3409
 E-Mail:
 Web Site: www.pncorp.com

Detailed Pipe Segment Report

Aries VC-4000

2/7/2007 4:39:34 PM

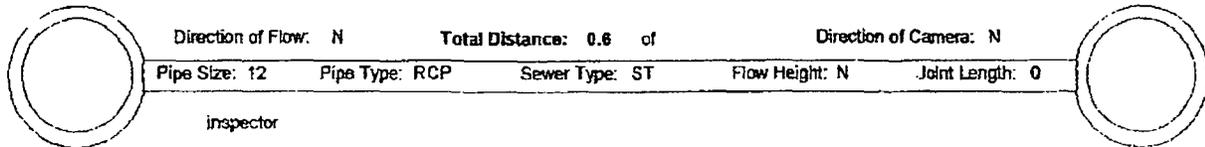
Database Name: C:\Program Files\VC4000\Data\Delta environmental 2-7-07.mdb

Page Number 2

Date: 2/7/2007 Time: 10:07:54 AM Record Number: 2 Investigator: SMART	City Name: PORTLAND,OR Customer Name: DELTA ENVIROMENTAL Project Number: Project Name:	Tape Number: 1 VCR Count: 0:03:30 File Name: CD-ROM#:
Quarter Section: Sub-Basin ID: Lot To Lot #:	Weather: CLOUDY Inspection Type: TV NEW LINE Maintenance Prior: NONE	Street: Intersects: Location ID: Type:

Upstream Manhole
MH-12

Downstream Manhole
MH-76



Depth:

GPS:

Depth:

GPS:

Comments:

Distance	Code	Clock	Priority	Parameters	VCR Cnt	Image	Comments
0	GO						START INSPECTION AT MH-12
-07							END OF RUN

Cowlitz Clean Sweep
 55 International way
 Longview Wa
 Phone: 360-423-6316
 Fax: 360-423-3409
 E-Mail:
 Web Site: www.pncorp.com

Detailed Pipe Segment Report

Arios VE-4600

2/7/2007 4:39:34 PM

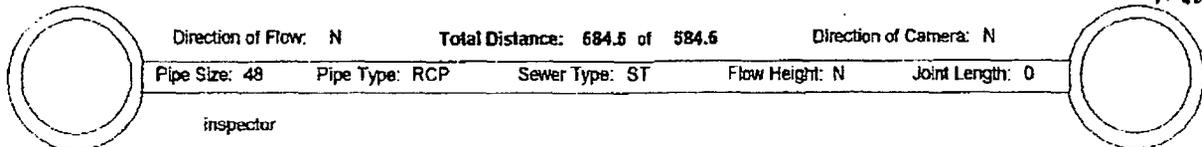
Database Name: C:\Program Files\VC4000\Data\Delta environmental 2-7-07.mdb

Page Number 3

Date: 2/7/2007	City Name: PORTLAND,OR	Tape Number: 1
Time: 10:22:16 AM	Customer Name: DELTA ENVIROMENTAL	VCR Count: 0:10:05
Record Number: 3	Project Number:	File Name:
Investigator: SMART	Project Name:	CD-ROM #:
Quarter Section:	Weather: CLOUDY	Street:
Sub-Basin ID:	Inspection Type: TV EXISTING LIN	Intersects:
Lot To Lot #:	Maintenace Prior: NONE	Location ID: Type:

Upstream Manhole
 MH-86

Downstream Manhole
 MH-~~7~~
 MH-80



Depth:

Depth:

GPS:

GPS:

Comments:

Distance	Code	Clock	Priority	Parameters	VCR Cnt	Image	Comments
0	GO						START INSPECTION AT MH-86
1.3							LAT RT - to MH-72
25.6							MH-76
431.2							LEAKY JOINT
443							LEAKY JOINT
455.5							LEAKY JOINT
472.1							MH-89
475.2							LAT LT to MH-75
475.2							LAT RT Chenal
584.5							END OF RUN MH-80

Sheen observed at 467.1 after review tape
 JSP

Cowlitz Clean Sweep
 55 International way
 Longview Wa
 Phone: 360-423-6316
 Fax: 360-423-3409
 E-Mail:
 Web Site: www.pncorp.com

Detailed Pipe Segment Report

Aries VC-4000

2/7/2007 4:39:34 PM

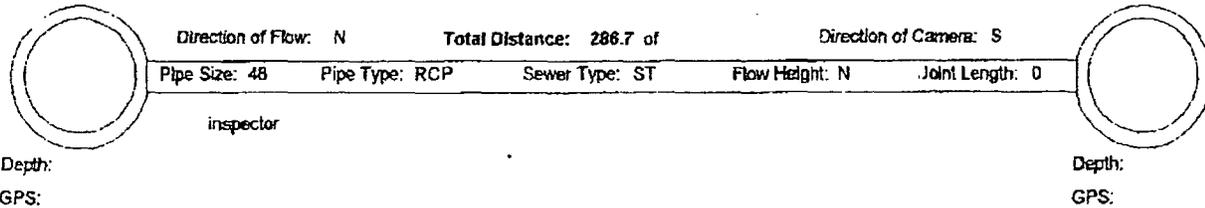
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Page Number 4

Date: 2/7/2007 Time: 12:14:36 PM Record Number: 4 Investigator: SMART	City Name: PORTLAND,OR Customer Name: DELTA ENVIROMENTAL Project Number: Project Name:	Tape Number: 1 VCR Count: 1:18:40 File Name: CD-ROM#:
Quarter Section: Sub-Bash ID: Lot To Lot #:	Weather: CLOUDY Inspection Type: TV EXISTING LIN Maintenance Prior: NONE	Street: Intersects: Location ID: Type:

Upstream Manhole
MH-76

Downstream Manhole
MH-86



Comments:

Distance	Code	Clock	Priority	Parameters	VCR Cnt	Image	Comments
6	GO						START INSPECTION AT MH-86
20.9							LAT LT
27							MH-86
192.7							LAT RT CHEVRON
217.1							LAT RT
259.4							LEAKY JOINT
286.7							END OF RUN

Cowlitz Clean Sweep
 55 International way
 Longview Wa
 Phone: 360-423-6316
 Fax: 360-423-3409
 E-Mail:
 Web Site: www.pnecorp.com

Detailed Pipe Segment Report

Artes VC-4000

2/7/2007 4:39:34 PM

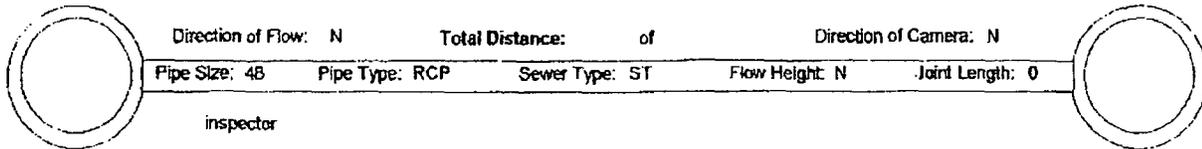
Database Name: C:\Program Files\VC4000\Data\Delta environmental 2-7-07.mdb

Page Number 6

Date: 2/7/2007 Time: 3:44:39 PM Record Number: 6 Investigator: SMART	City Name: PORTLAND,OR Customer Name: DELTA ENVIROMENTAL Project Number: Project Name:	Tape Number: 1 VCR Count: 2:06:24 File Name: CD-ROM #:
Quarter Section: Sub-Basin ID: Lot To Lot #:	Weather: CLOUDY Inspection Type: TV EXISTING L/N Maintenance Prior: NONE	Street: Intersects: Location ID: Type:

Upstream Manhole

Downstream Manhole



Depth:

GPS:

Depth:

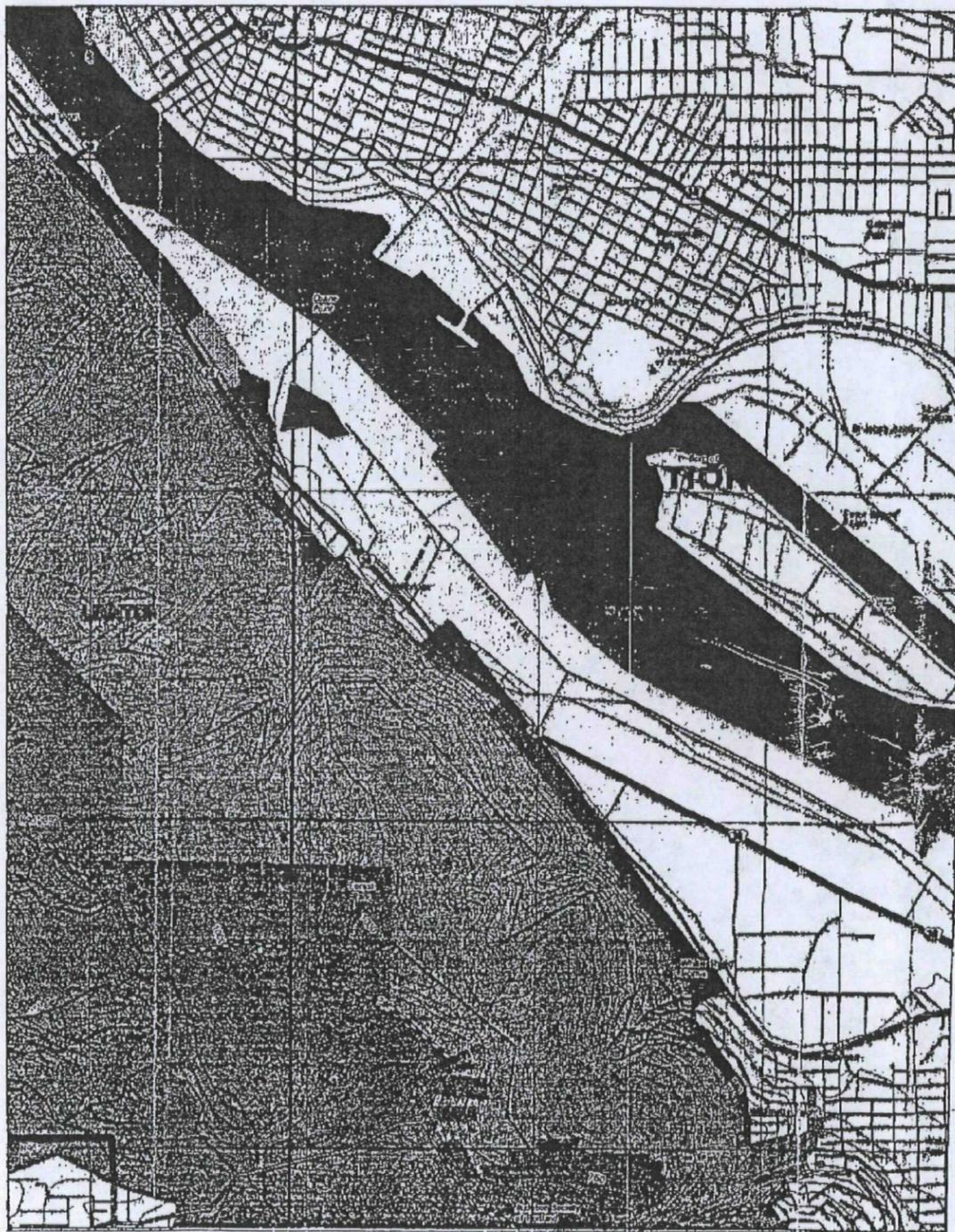
GPS:

Comments:

Distance	Code	Clock	Priority	Parameters	VCR Cnt	Image	Comments
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General Standard Notes

1. CONTRACTOR SHALL NOTIFY BUREAU OF ENVIRONMENTAL SERVICES INSPECTION SERVICES AT (503) 823-7931 TWO (2) BUSINESS DAYS PRIOR TO COMMENCEMENT OF WORK.
2. ALL CONSTRUCTION SHALL CONFORM TO CITY OF PORTLAND STANDARD CONSTRUCTION SPECIFICATIONS, AS REVISED 1998. CONTRACTOR AND/OR SUBCONTRACTOR SHALL HAVE A MINIMUM OF ONE SET OF APPROVED PLANS AND CITY OF PORTLAND STANDARD CONSTRUCTION SPECIFICATIONS ON THE JOB SITE AT ALL TIMES DURING CONSTRUCTION.
3. OFFICE OF PLANNING AND DEVELOPMENT REVIEW, APPROVALS AND PERMITS REQUIRED FOR PRIVATELY MAINTAINED STRUCTURES CONSTRUCTED. ALL WORK APPROVED UNDER OPDR PERMITS SHALL BE PRIVATELY OWNED AND MAINTAINED.
4. ATTENTION EXCAVATORS: OREGON LAW REQUIRES YOU TO FOLLOW RULES ADOPTED BY OREGON UTILITY NOTIFICATION CENTER. THOSE RULES ARE SET FORTH IN OAR 952-001-0010 THROUGH OAR 952-001-0090. YOU MAY OBTAIN COPIES OF THOSE RULES FROM THE CENTER BY CALLING (503)232-1987. IF YOU HAVE ANY QUESTIONS ABOUT THE RULES, YOU MAY CONTACT THE CALL CENTER. YOU MUST NOTIFY THE CENTER AT LEAST 2 BUSINESS DAYS, BUT NOT MORE THAN 10 BUSINESS DAYS, BEFORE COMMENCING AN EXCAVATION. CALL 503-246-6699.
5. EXCAVATED SEWER TRENCH SPOIL MATERIAL SHALL BE DISPOSED OF AT A PROPER LANDFILL, OR APPLICANT SHALL OBTAIN A FILL PERMIT FROM THE OFFICE OF PLANNING AND DEVELOPMENT REVIEW BEFORE BEING DISPOSED OF ON-SITE. A COPY OF THE GRADING PERMIT AND PLAN SHOULD ALSO BE PROVIDED TO THE BUREAU OF ENVIRONMENTAL SERVICES FOR CONSTRUCTION INSPECTION.
6. STABILIZATION MAY BE NECESSARY AS PER CITY OF PORTLAND STANDARD CONSTRUCTION SPECIFICATIONS AND APPROVED BY BES.
7. SITE EROSION PLAN TO BE APPROVED AND CONTROLS IN PLACE PRIOR TO CONSTRUCTION. ALL WORK UNDER THIS PERMIT WILL REQUIRE SITE EROSION CONTROL IN COMPLIANCE WITH ALL PROVISIONS OF THE CITY TITLE 10.
8. THIS PERMIT IS FOR WORK ON THE PUBLIC 60" STORM SEWER WHICH INCLUDES:
 - REMOVAL AND REPLACEMENT OF PIPE (60")
 - INSTALLATION OF CONCRETE COLLAR AROUND 60" PIPE
 - PLACEMENT OF RIP-RAP FOR THE DISSIPATION OF FLOW FROM THE 60" PIPE AND FOR THE SUPPORT OF THE CONCRETE COLLAR.
 - INSPECTION OF OTHER WORK TO ENSURE NO DAMAGE TO THE 60" PUBLIC STORM SEWER DURING CONSTRUCTION.



REFERENCES

USGS 7.5 Minute Topographic Maps
 Portland, Oregon-Washington
 Linnton, Oregon
 DeLorme TopoQuads, 1999
 SCALE: 1 inch = 3750 feet

NOTE: Permit Job
 Ordinance No. 130672
 Exhibit "A"

*AS-BUILT
 1-06-02
 Jerry Jones*

ORIGINAL DESIGN
 SIGNED BY:
 BRAD J BERGGREN

KHM ENVIRONMENTAL MANAGEMENT

NO	DATE	DESCRIPTION	APPD
		REVISION	

DESIGNED BY	DATE APPD.
DRAWN BY	PROGRAM DATE
CHECKED BY	CONSTR. DATE
DESIGN MGR	

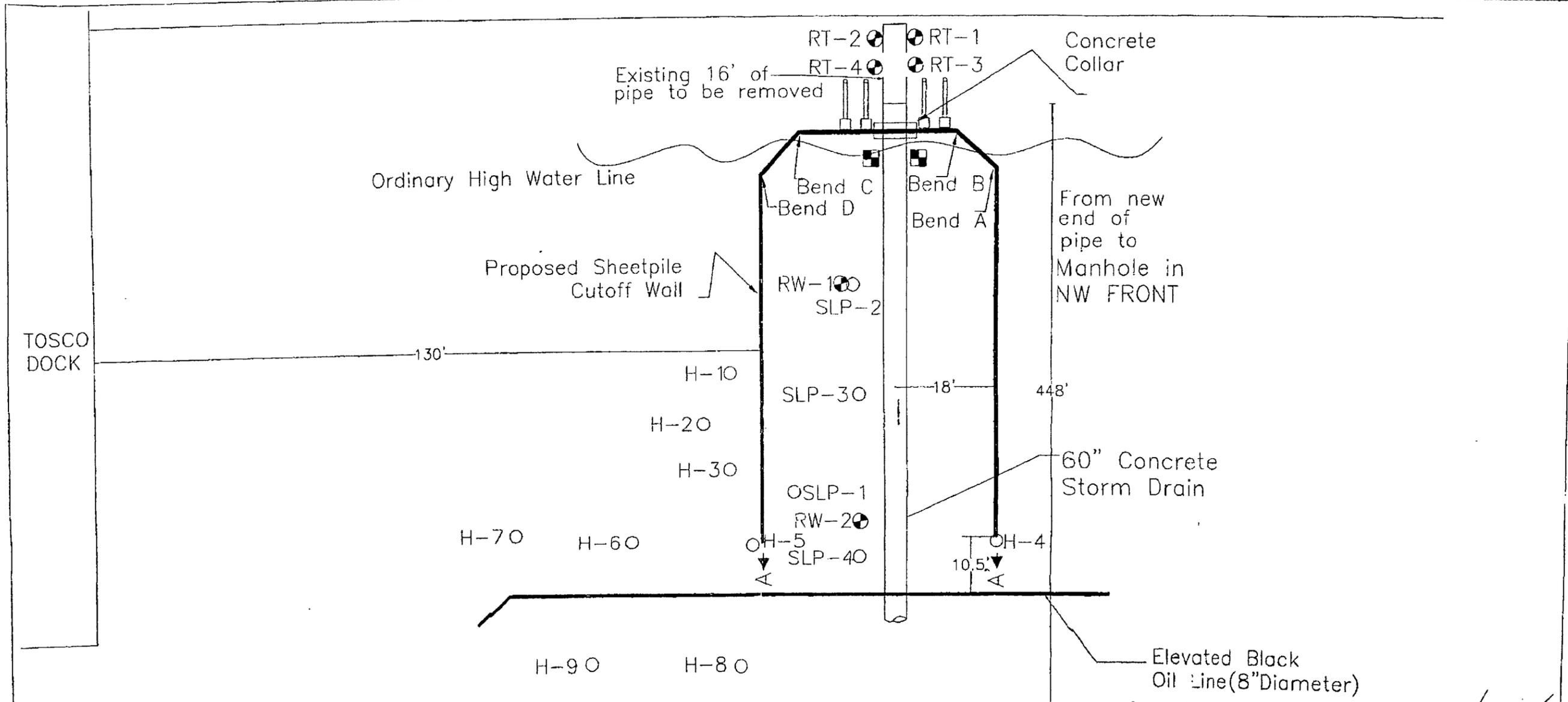
CITY OF PORTLAND
ENVIRONMENTAL SERVICES
 Dan Saltzman
 Commissioner
 Lee Kilgler, PE
 BES Chief Engineer



ASBUILT

**SITE LOCATION MAP
 NW Front Ave & NW Deane**

1/4 SECTION
 2423
 JOB NO.
 7181
 SHEET NO.
 1 of 7



LEGEND

- Proposed Recovery Well Location
- RT-2 Existing Recovery Well and Identification
- H-90 Boring Location and Identification

1. This is for information only (see note #8)
2. City of Portland maintains ownership of storm sewer TOSCO and CHEVRON own and provide operation and maintenance of sheet pile wall, drain valve and piping including concrete collar around storm sewer. TOSCO and CHEVRON to provide payment or repair public storm sewer if damage to pipe caused by private structures (See sewer easement)

*AS-BUILT
1-06-02
Gary Jones*

ORIGINAL DESIGN
SIGNED BY:
BRAD J BERGGREN

KHM ENVIRONMENTAL MANAGEMENT

NO.	DATE	DESCRIPTION	APPROVED

DESIGNED BY	DATE APPD.
DRAWN BY	PROGRAM MGR.
CHECKED BY	CONST. MGR.
DESIGN MGR.	

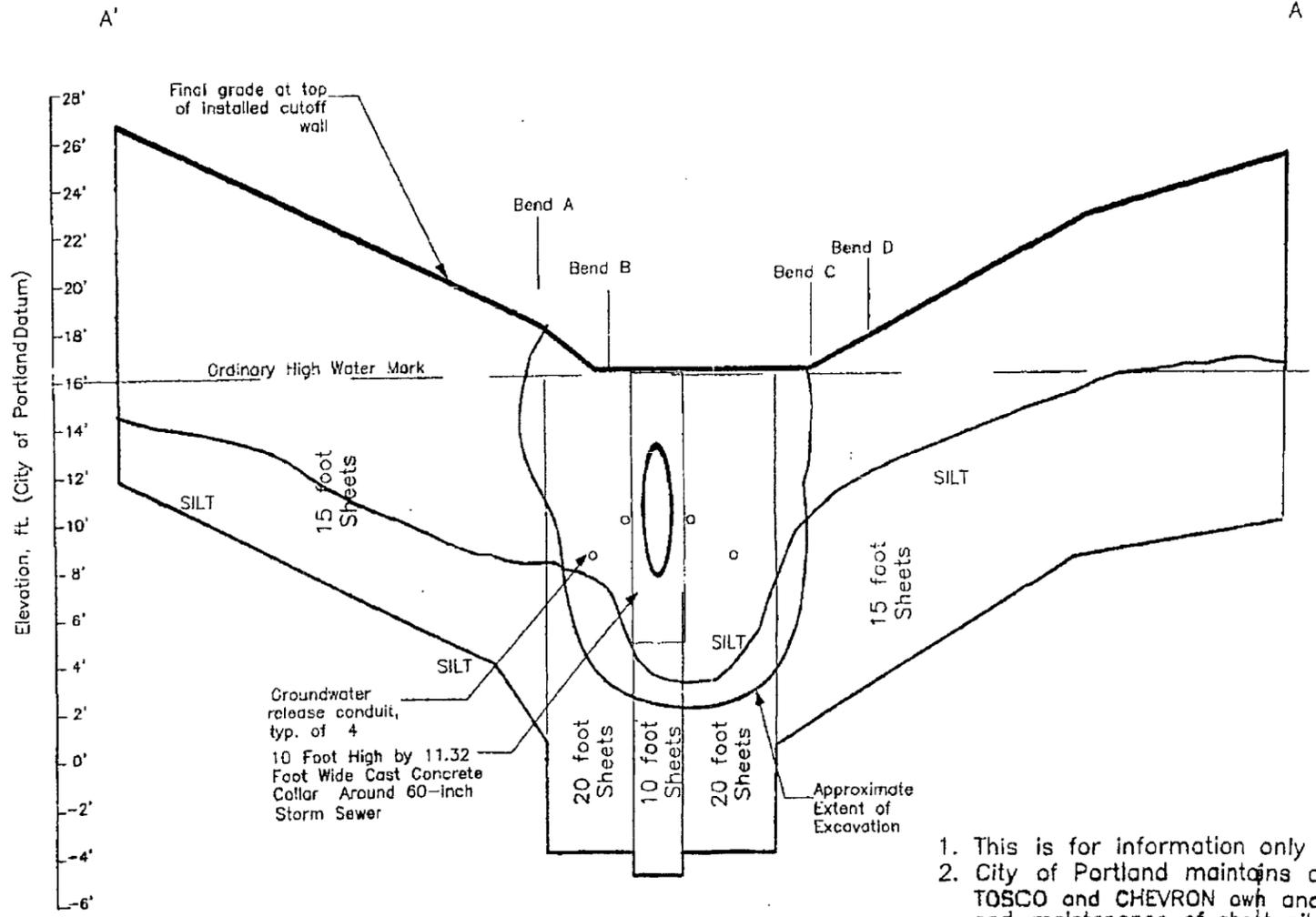
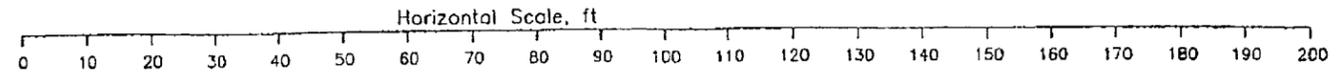
CITY OF PORTLAND
ENVIRONMENTAL SERVICES
Dan Saltzman
Commissioner
Lee Klingler, PE
BES Chief Engineer



ASBUILT

PROPOSED CUTOFF WALL PLAN VIEW

1/4 SECTION	2423
JOB NO.	7181
SHEET NO.	3 of 7



LEGEND

- Ordinary High Water Mark
- - - - - Silt Contact
- Ground Surface Before Construction
- Limit of Sheet Piling

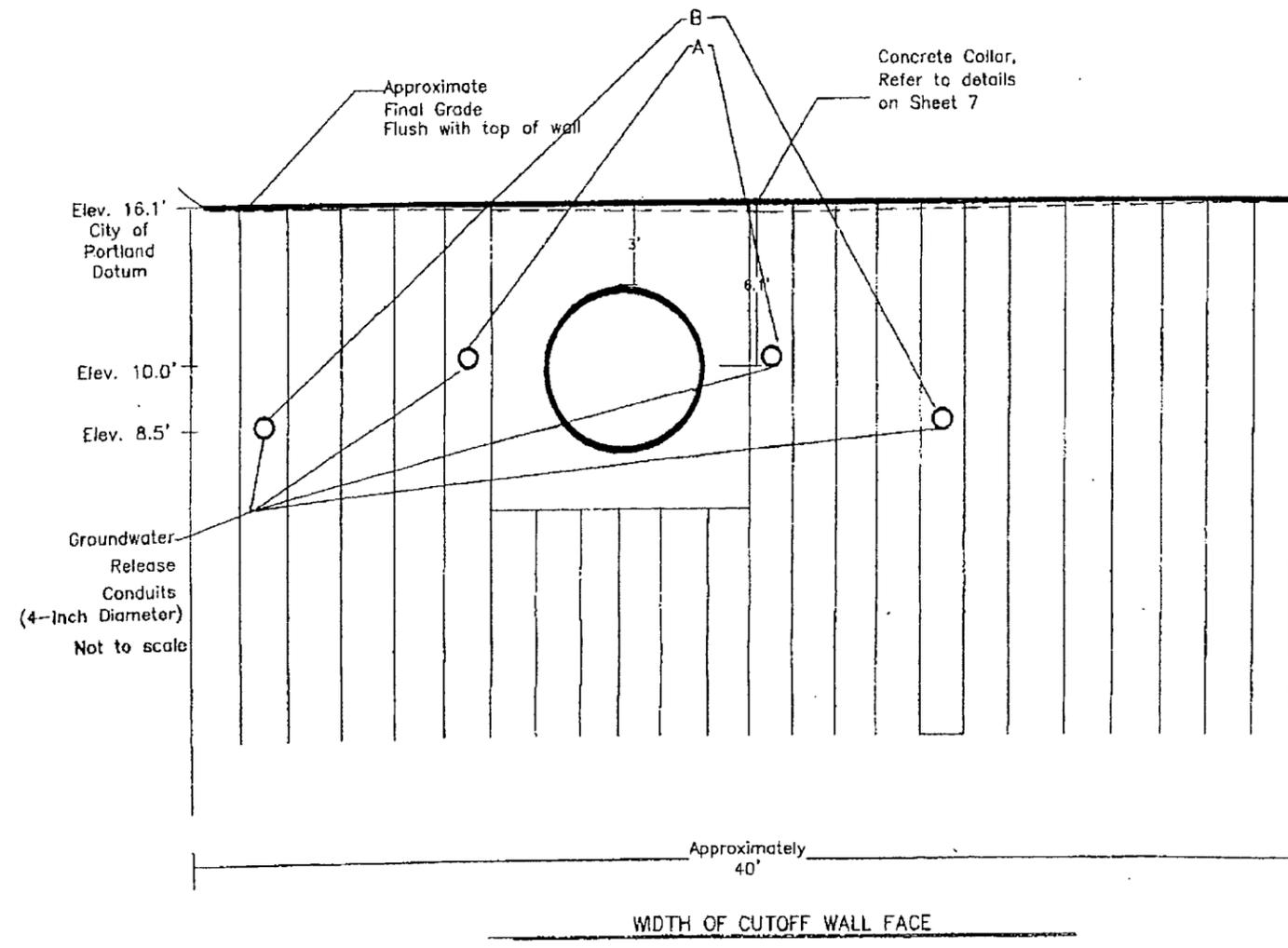
1. This is for information only (see note #8)
2. City of Portland maintains ownership of storm sewer. TOSCO and CHEVRON own and provide operation and maintenance of sheet pile wall, drain valve and piping including concrete collar around storm sewer. TOSCO and CHEVRON to provide payment or repair public storm sewer if damage to pipe caused by private structures

*AS-BUILT
1-06-02
Gary Jones*

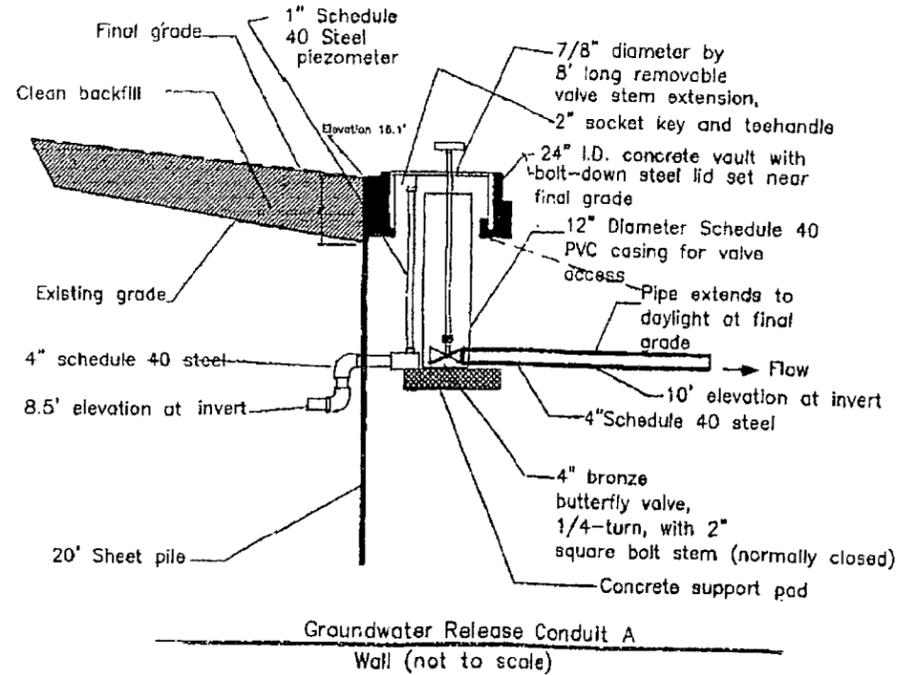
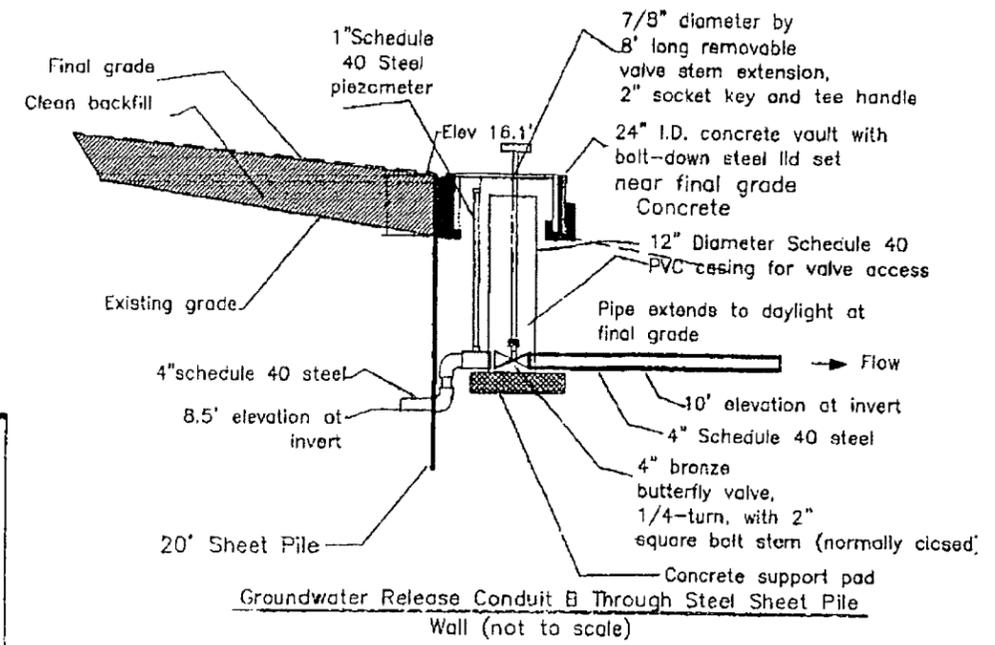
ORIGINAL DESIGN
SIGNED BY:
BRAD J BERGGREN

KHM ENVIRONMENTAL MANAGEMENT

DESIGNED BY: _____ DATE APP'D: _____ DRAWN BY: _____ PROGRAM MGR: _____ CHECKED BY: _____ CONST. MGR: _____ DESIGN MGR: _____		CITY OF PORTLAND ENVIRONMENTAL SERVICES Dan Saltzman Commissioner Lee Klingler, PE BES Chief Engineer		 ASBUILT		CROSS SECTION ALONG ALIGNMENT OF CUTOFF WALL		1/4 SECTION 2423 JOB NO. 7181 SHEET NO. 4 of 7
XREF(S) USED: _____ ROTATIONAL ANGLE: _____ CONTRACTED BY: TERRA HYDRA, INC. PROJECT COMPLETED: 1/3/2002 MAP CORRECTED BY: K KOBOW CHECKED BY: J STIEMER FINAL MAP DATA		APPROVALS Engineering Services Chief Engineer Reg. Prof. Engr. No. 9327						
NO	DATE	DESCRIPTION	APP'D					
		REVISION						



1. This sheet is for information only (See note #8)
2. City of Portland maintains ownership of storm sewer TOSCO and CHEVRON own and provide operation and maintenance of sheet pile wall, drain valve and piping including concrete collar around storm sewer. TOSCO and CHEVRON to provide payment or repair public storm sewer if damage to pipe caused by private structures



*AS-BUILT
1-06-02
Gary Jones*

ORIGINAL DESIGN
SIGNED BY:
BRAD J BERGGREN

KHM ENVIRONMENTAL MANAGEMENT

NO	DATE	DESCRIPTION	APPD

DESIGNED BY	DATE APPD.
DRAWN BY	PROGRAM MGR
CHECKED BY	CONST. MGR
DESIGN MGR	

CITY OF PORTLAND
ENVIRONMENTAL SERVICES

Don Saltzman
Commissioner
Lee Klingler, PE
BES Chief Engineer

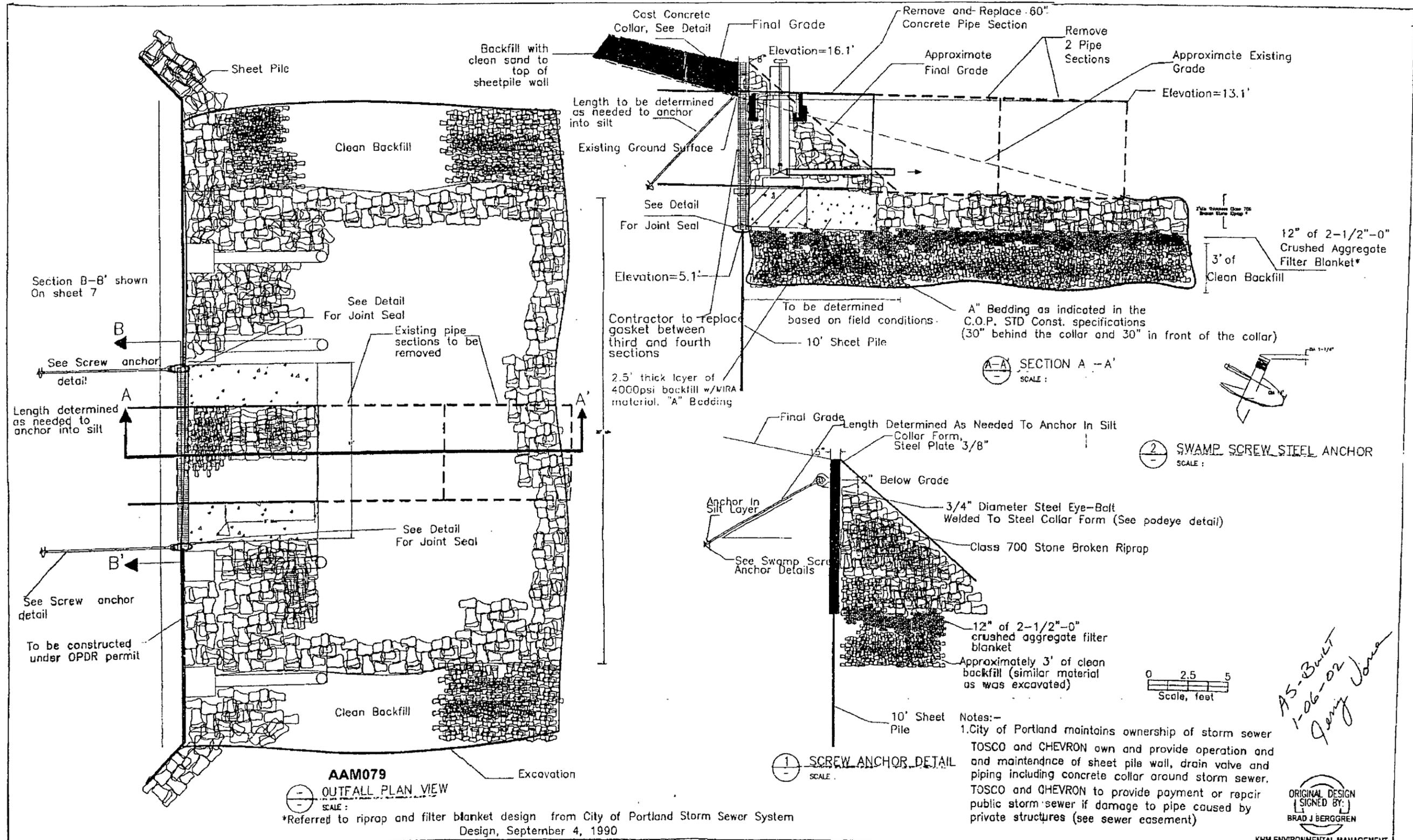
Approvals
Engineering Services Chief Engineer
Reg. Prof. Engr. No. 9327



ASBUILT

Cutoff Wall Elevation and
Groundwater Release Conduit Detail

1/4 SECTION
2423
JOB NO.
7181
SHEET NO.
5 of 7

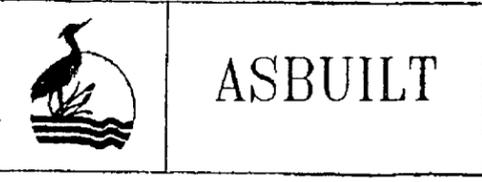


NO.	DATE	DESCRIPTION	APPROVED

DESIGNED BY: DATE APPD: _____
 DRAWN BY: _____
 CHECKED BY: _____
 DESIGN MGR: _____

CITY OF PORTLAND
ENVIRONMENTAL SERVICES
 Dan Saltzman
 Commissioner
 Lee Klingler, PE
 BES Chief Engineer

Approvals
 Engineering Services Chief Engineer
 Reg. Prof. Engr. No. 9327



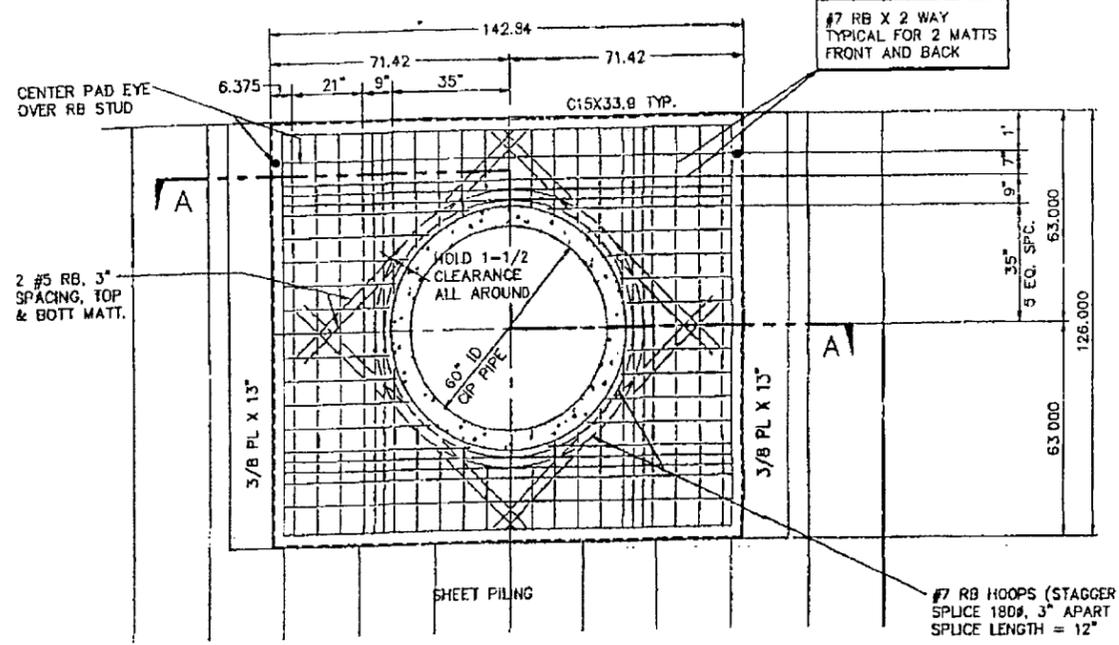
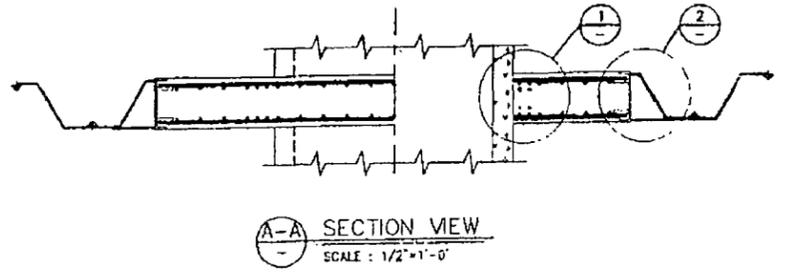
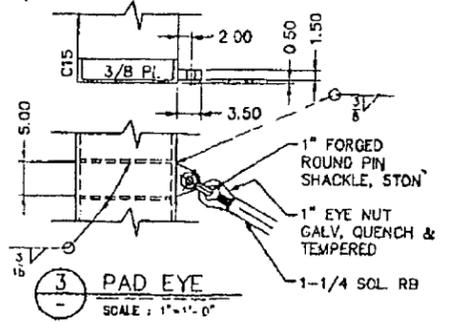
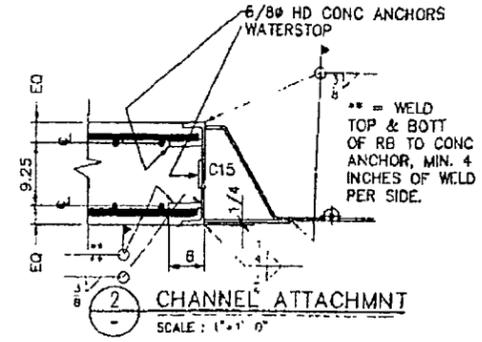
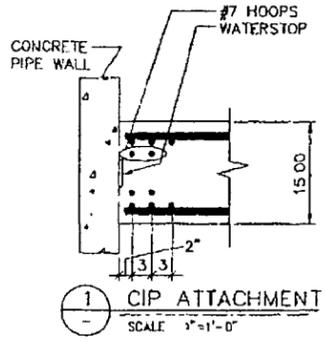
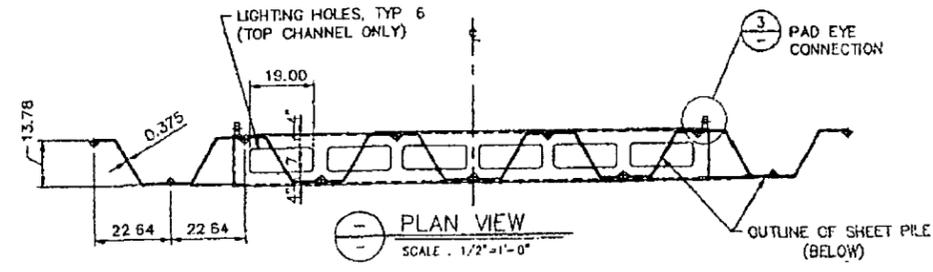
CUTOFF WALL PLAN VIEW

1/4 SECTION	2423
JOB NO.	7181
SHEET NO.	6 of 7

*AS-BUILT
 1-06-02
 Jerry Jones*

ORIGINAL DESIGN
 (SIGNED BY)
 BRAD J BERGGREN

KHM ENVIRONMENTAL MANAGEMENT



*AS-BUILT
1-06-02
Gary Jones*

ORIGINAL DESIGN
SIGNED BY:
BRAD J BERGGREN

KHM ENVIRONMENTAL MANAGEMENT

NO	DATE	DESCRIPTION	APPD

DESIGNED BY	DATE APPD.
DRAWN BY	PROGRAM MGR
CHECKED BY	DENST. MGR
DESIGN MGR	

CITY OF PORTLAND
ENVIRONMENTAL SERVICES
Don Soltzman
Commissioner
Lee Klingler, PE
BES Chief Engineer

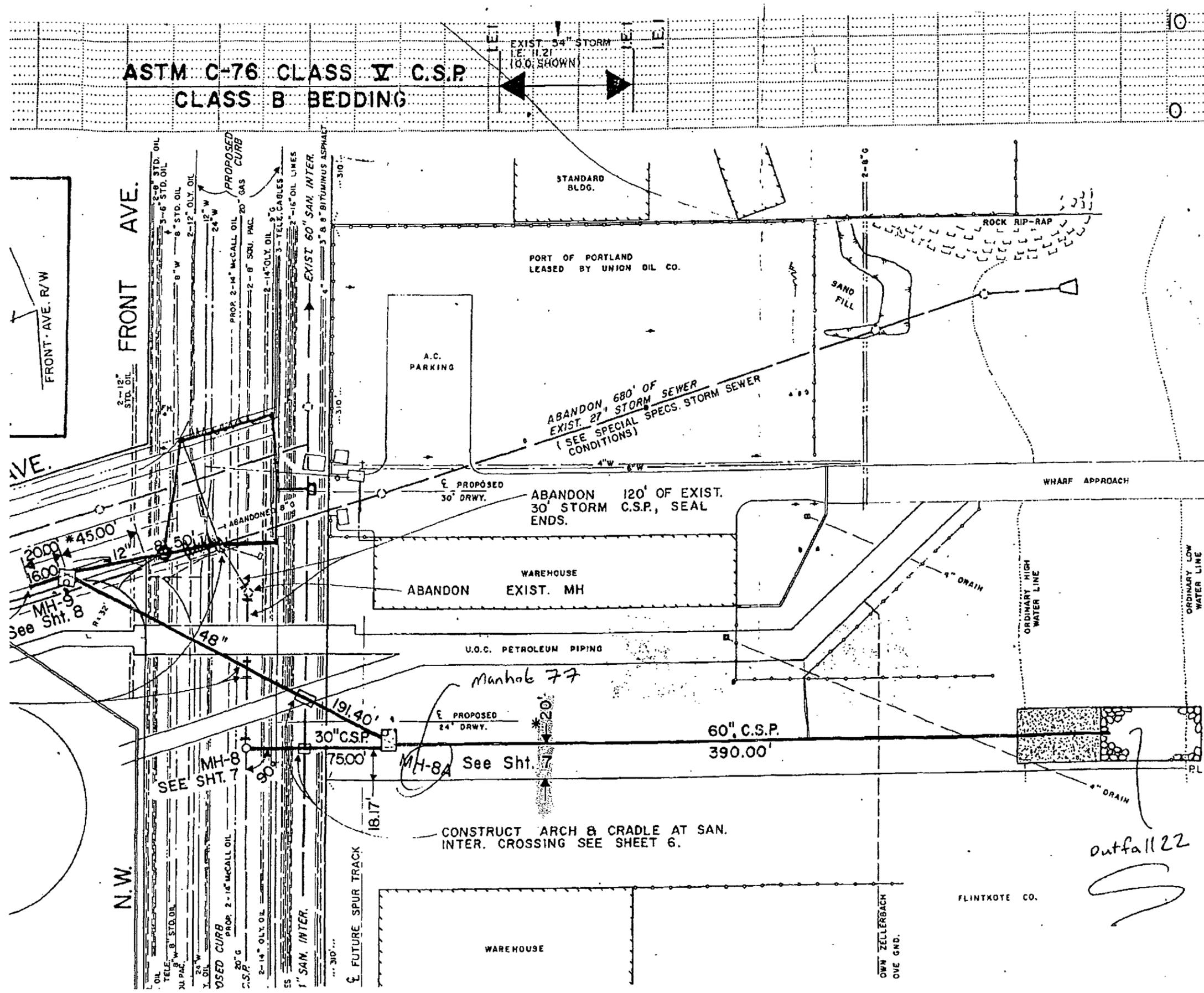
Approvals
Engineering Services Chief Engineer
Reg. Prof. Engr. No. 9327



ASBUILT

CONCRETE COLLAR DETAILS

1/4 REVISION	2423
JOB NO.	7181
SHEET NO.	7 of 7



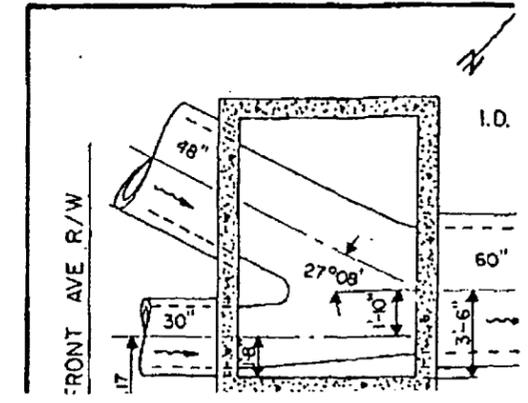
NOTE: VERIFY ELEVATION PRIOR TO CONSTR

*CONTROLLING DIMEN For location of MH.

WILLAMETTE RIVER

51.34
1"

RIPRAP & FILTER BLANKET (SEE DETAIL THIS SHEET).



outfall 22

